

=> fil reg

FILE 'REGISTRY' ENTERED AT 08:23:58 ON 23 MAY 2006  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 22 MAY 2006 HIGHEST RN 885262-53-3  
DICTIONARY FILE UPDATES: 22 MAY 2006 HIGHEST RN 885262-53-3

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS  
for details.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d l82 ide can tot

L82 ANSWER 1 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 601473-45-4 REGISTRY  
ED Entered STN: 09 Oct 2003  
CN Reillex 402I (9CI) (CA INDEX NAME)  
ENTE A pyridine-functionalized basic ion exchange resin (Reillex Co.)  
MF Unspecified  
CI PMS, MAN  
PCT Manual registration  
SR CA  
LC STN Files: CA, CAPLUS, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:262465

L82 ANSWER 2 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 145380-06-9 REGISTRY  
ED Entered STN: 19 Jan 1993

CN Reillex HP (9CI) (CA INDEX NAME)  
ENTE A macroporous copolymer 4-vinylpyridine with divinylbenzene ion exchange resin (Reilly Ind., Inc.)  
MF Unspecified  
CI PMS, COM, MAN  
PCT Manual registration  
SR CA  
LC STN Files: CA, CAPLUS, TOXCENTER, USPAT2, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

22 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
22 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:162428  
REFERENCE 2: 140:61617  
REFERENCE 3: 139:262465  
REFERENCE 4: 138:385598  
REFERENCE 5: 138:273594  
REFERENCE 6: 137:326188  
REFERENCE 7: 135:142779  
REFERENCE 8: 134:340707  
REFERENCE 9: 133:364013  
REFERENCE 10: 133:109728

L82 ANSWER 3 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN **128452-02-8** REGISTRY

ED Entered STN: 27 Jul 1990

CN Pyridine, 4-ethenyl-, polymer with diethenylbenzene, compd. with chloromethane (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Benzene, diethenyl-, polymer with 4-ethenylpyridine, compd. with chloromethane (9CI)

CN Methane, chloro-, compd. with diethenylbenzene polymer with 4-ethenylpyridine (9CI)

OTHER NAMES:

CN 4-Vinylpyridine-divinylbenzene copolymer, compd. with methyl chloride

CN Divinylbenzene-4-vinylpyridine copolymer salt with methyl chloride

MF (C10 H10 . C7 H7 N)x . x C H3 Cl

PCT Polystyrene, Polyvinyl

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 74-87-3

CMF C H3 Cl

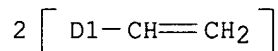
H3C-Cl

CM 2

CRN 9017-40-7  
CMF (C10 H10 . C7 H7 N)x  
CCI PMS

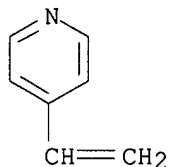
CM 3

CRN 1321-74-0  
CMF C10 H10  
CCI IDS



CM 4

CRN 100-43-6  
CMF C7 H7 N



3 REFERENCES IN FILE CA (1907 TO DATE)  
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:244545

REFERENCE 2: 139:262465

REFERENCE 3: 113:120566

L82 ANSWER 4 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 125200-80-8 REGISTRY

ED Entered STN: 02 Feb 1990

CN Reillex HPQ (9CI) (CA INDEX NAME)

ENTE A chloromethylated divinylbenzene-p-vinylpyridine anion exchanger (Reilly Industries)

MF Unspecified

CI PMS, MAN

PCT Manual registration

SR CA

LC STN Files: CA, CAPLUS, PROMT, TOXCENTER, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

44 REFERENCES IN FILE CA (1907 TO DATE)

44 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 144:373383

REFERENCE 2: 144:111650

REFERENCE 3: 143:334637

REFERENCE 4: 142:62126

REFERENCE 5: 141:172900

REFERENCE 6: 139:331868

REFERENCE 7: 139:262465

REFERENCE 8: 138:40202

REFERENCE 9: 137:269512

REFERENCE 10: 137:48106

L82 ANSWER 5 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN **39429-11-3** REGISTRY

ED Entered STN: 16 Nov 1984

CN Wofatit AD 41 (9CI) (CA INDEX NAME)

OTHER NAMES:

CN AD 41

DR 39434-92-9

ENTE A dimethylamine-aminated divinylbenzene-styrene copolymer anion exchanger

MF Unspecified

CI MAN

LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

105 REFERENCES IN FILE CA (1907 TO DATE)

3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

105 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 144:274412

REFERENCE 2: 134:120405

REFERENCE 3: 133:33862

REFERENCE 4: 129:235050

REFERENCE 5: 127:137797

REFERENCE 6: 125:245830

REFERENCE 7: 125:230038

REFERENCE 8: 124:120646

REFERENCE 9: 122:297908

REFERENCE 10: 121:138129

L82 ANSWER 6 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 10028-15-6 REGISTRY

ED Entered STN: 16 Nov 1984

CN Ozone (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Atmospheric ozone

CN Healozone

CN Oxygen, mol. (O3)

CN Ozone (O3)

CN Ozone(160160160)

CN Triatomic oxygen

DR 855426-80-1, 728855-47-8, 74087-86-8, 412908-40-8

MF O3

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, PDLCOM\*, PIRA, PROMT, RTECS\*, SCISEARCH, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB  
(\*File contains numerically searchable property data)

Other Sources: EINECS\*\*, NDSL\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

O-O-O

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

60748 REFERENCES IN FILE CA (1907 TO DATE)

79 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

60846 REFERENCES IN FILE CAPLUS (1907 TO DATE)

2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 144:424082

REFERENCE 2: 144:423849

REFERENCE 3: 144:423144

REFERENCE 4: 144:422573

REFERENCE 5: 144:422434

REFERENCE 6: 144:422268

REFERENCE 7: 144:422127

REFERENCE 8: 144:422068

REFERENCE 9: 144:421379

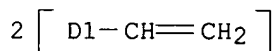
REFERENCE 10: 144:420134

L82 ANSWER 7 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 9017-40-7 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN Pyridine, 4-ethenyl-, polymer with diethenylbenzene (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Benzene, diethenyl-, polymer with 4-ethenylpyridine (9CI)  
CN Pyridine, 4-vinyl-, polymer with divinylbenzene (8CI)  
OTHER NAMES:  
CN 4-Vinylpyridine-divinylbenzene copolymer  
CN Divinylbenzene-4-ethenylpyridine copolymer  
CN Divinylbenzene-4-vinylpyridine copolymer  
CN Divinylbenzene-4-vinylpyridine polymer  
CN Reillex 402  
CN Reillex 425  
CN Reillex X 425  
DR 178157-25-0  
MF (C10 H10 . C7 H7 N)x  
CI PMS, COM  
PCT Polystyrene, Polyvinyl  
LC STN Files: CA, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST,  
CSCHEM, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, TOXCENTER, USPAT2, USPATFULL  
Other Sources: DSL\*\*, TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)

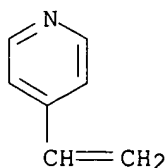
CM 1

CRN 1321-74-0  
CMF C10 H10  
CCI IDS



CM 2

CRN 100-43-6  
CMF C7 H7 N



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

385 REFERENCES IN FILE CA (1907 TO DATE)

jan delaval - 23 may 2006

101 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
385 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 144:370727  
REFERENCE 2: 144:274617  
REFERENCE 3: 144:198612  
REFERENCE 4: 144:113854  
REFERENCE 5: 144:111650  
REFERENCE 6: 144:36135  
REFERENCE 7: 143:421964  
REFERENCE 8: 143:359446  
REFERENCE 9: 143:318019  
REFERENCE 10: 143:285946

L82 ANSWER 8 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 7782-44-7 REGISTRY

ED Entered STN: 16 Nov 1984

CN Oxygen (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Dioxygen

CN Molecular oxygen

CN Oxygen molecule

FS 3D CONCORD

DR 1338-93-8, 14797-70-7, 80217-98-7, 80937-33-3

MF O2

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOSIS, BIOTECHNO, CA, CABA,  
CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN,  
CSCHEM, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,  
ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA,  
MEDLINE, MRCK\*, MSDS-OHS, PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SPECINFO,  
TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB  
(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

382512 REFERENCES IN FILE CA (1907 TO DATE)

35052 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

383022 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 144:424754

REFERENCE 2: 144:424680

REFERENCE 3: 144:424671  
REFERENCE 4: 144:424645  
REFERENCE 5: 144:424573  
REFERENCE 6: 144:424310  
REFERENCE 7: 144:424215  
REFERENCE 8: 144:424086  
REFERENCE 9: 144:424057  
REFERENCE 10: 144:423967

L82 ANSWER 9 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 108-95-2 REGISTRY

ED Entered STN: 16 Nov 1984

CN Phenol (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Benzenol

CN Carbolic acid

CN ENT 1814

CN Hydroxybenzene

CN Monohydroxybenzene

CN Monophenol

CN NSC 36808

CN Oxybenzene

CN Phenic acid

CN Phenyl alcohol

CN Phenyl hydrate

CN Phenyl hydroxide

CN Phenylic acid

CN Phenylic alcohol

FS 3D CONCORD

DR 8002-07-1, 14534-23-7, 50356-25-7

MF C6 H6 O

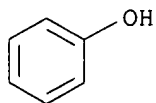
CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, PATDPASPC, PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*



72689 REFERENCES IN FILE CA (1907 TO DATE)  
10460 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
72835 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
11 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 144:422572  
REFERENCE 2: 144:422452  
REFERENCE 3: 144:422451  
REFERENCE 4: 144:422443  
REFERENCE 5: 144:422401  
REFERENCE 6: 144:422381  
REFERENCE 7: 144:422360  
REFERENCE 8: 144:422351  
REFERENCE 9: 144:419837  
REFERENCE 10: 144:419756

L82 ANSWER 10 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN **98-82-8** REGISTRY

ED Entered STN: 16 Nov 1984

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Cumene (8CI)

OTHER NAMES:

CN (1-Methylethyl)benzene

CN 2-Phenylpropane

CN Cumol

CN i-Propylbenzene

CN Isopropylbenzene

CN NSC 8776

FS 3D CONCORD

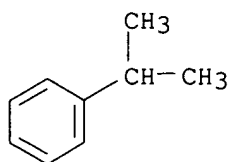
MF C9 H12

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA,  
CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST,  
CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, ENCOMPLIT,  
ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HSDB\*, IFICDB, IFIPAT,  
IFIUDB, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, PDLCOM\*, PIRA, PROMT,  
RTECS\*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB  
(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

11439 REFERENCES IN FILE CA (1907 TO DATE)  
 106 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 11451 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 9 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 144:424786

REFERENCE 2: 144:424558

REFERENCE 3: 144:422381

REFERENCE 4: 144:418080

REFERENCE 5: 144:415855

REFERENCE 6: 144:394224

REFERENCE 7: 144:394108

REFERENCE 8: 144:390547

REFERENCE 9: 144:390278

REFERENCE 10: 144:383427

L82 ANSWER 11 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN

RN 80-15-9 REGISTRY

ED Entered STN: 16 Nov 1984

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Hydroperoxide,  $\alpha,\alpha$ -dimethylbenzyl (8CI)

OTHER NAMES:

CN  $\alpha,\alpha$ -Dimethylbenzyl hydroperoxide

CN  $\alpha$ -Cumene hydroperoxide

CN  $\alpha$ -Cumyl hydroperoxide

CN 1-Methyl-1-phenylethyl hydroperoxide

CN 2-Hydroperoxy-2-phenylpropane

CN 2-Phenyl-2-propyl hydroperoxide

CN 7-Cumyl hydroperoxide

CN CHP 158

CN CHP 90

CN CU 90

CN Cumen hydroperoxide

CN Cumene hydroperoxide

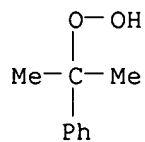
CN Cumenyl hydroperoxide

CN Cumyl hydroperoxide

CN H 80

CN Hyperiz

CN Isopropylbenzene hydroperoxide  
 CN Kayacumene H  
 CN Luperox CU 90  
 CN Percumyl H  
 CN Percumyl H 18  
 CN Percumyl H 80  
 CN R 239A  
 CN Trigonox K 80  
 CN Trigonox R 239A  
 CN Trigonox R 239R  
 FS 3D CONCORD  
 DR 79568-78-8  
 MF C9 H12 O2  
 CI COM  
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, MEDLINE, MSDS-OHS, PDLCOM\*, PIRA, PROMT, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL, VTB  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)

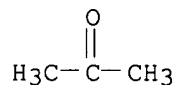


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

6264 REFERENCES IN FILE CA (1907 TO DATE)  
 59 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 6268 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 28 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 144:413393  
 REFERENCE 2: 144:407911  
 REFERENCE 3: 144:394229  
 REFERENCE 4: 144:390922  
 REFERENCE 5: 144:386355  
 REFERENCE 6: 144:371906  
 REFERENCE 7: 144:370274  
 REFERENCE 8: 144:370094  
 REFERENCE 9: 144:364313  
 REFERENCE 10: 144:355748

L82 ANSWER 12 OF 12 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 67-64-1 REGISTRY  
 ED Entered STN: 16 Nov 1984  
 CN 2-Propanone (9CI) (CA INDEX NAME)  
 OTHER CA INDEX NAMES:  
 CN Acetone (8CI)  
 CN Methyl ketone (6CI)  
 OTHER NAMES:  
 CN  $\beta$ -Ketopropane  
 CN Dimethyl ketone  
 CN Dimethylformaldehyde  
 CN NSC 135802  
 CN Propanone  
 CN Pyroacetic ether  
 FS 3D CONCORD  
 MF C3 H6 O  
 CI COM  
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS,  
 BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS,  
 CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM\*,  
 DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN\*,  
 HSDB\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT,  
 PDLCOM\*, PIRA, PROMT, PS, RTECS\*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA,  
 ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

76065 REFERENCES IN FILE CA (1907 TO DATE)  
 834 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 76309 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
 22 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 144:424672  
 REFERENCE 2: 144:423610  
 REFERENCE 3: 144:423087  
 REFERENCE 4: 144:422693  
 REFERENCE 5: 144:422380  
 REFERENCE 6: 144:422216  
 REFERENCE 7: 144:421409  
 REFERENCE 8: 144:421303

REFERENCE 9: 144:421113

REFERENCE 10: 144:420679

=> d his

(FILE 'HOME' ENTERED AT 07:34:54 ON 23 MAY 2006)  
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 07:35:06 ON 23 MAY 2006

L1 1 S US20060014985/PN OR (US2005-507227# OR WO2002-IT157)/AP, PRN  
E CODIGNOLA/AU  
L2 41 S E8  
SEL RN L1

FILE 'REGISTRY' ENTERED AT 07:36:17 ON 23 MAY 2006

L3 8 S E1-E8  
L4 1 S 98-82-8  
L5 1 S 80-15-9  
L6 54 S 80-15-9/CRN  
L7 9 S L6 NOT ((PMS OR IDS OR MXS)/CI OR COMPD)  
L8 7 S L7 NOT (MAN/CI OR H2O2)

FILE 'HCAPLUS' ENTERED AT 07:38:09 ON 23 MAY 2006

L9 11451 S L4  
L10 21653 S CUMENE OR 1 METHYLETHYL BENZENE OR 2 PHENYLPROPANE OR CUMOL O  
L11 6315 S L5 OR L8  
L12 8031 S (CUMEN# OR CUMYL OR CUMENYL) () (HYDROPEROXIDE OR HYDRO PEROXID  
L13 587 S ISOPROPYLBENZENE HYDROPEROXIDE  
L14 31 S CUMYLHYDROPEROXIDE  
L15 9 S CUMENHYDROPEROXIDE  
L16 60 S CUMENEHYDROPEROXIDE  
L17 575 S PERCUMYL  
L18 19 S ISOPROPYL BENZENE HYDROPEROXIDE  
L19 308 S DIMETHYLBENZYL HYDROPEROXIDE  
L20 8152 S L9, L10 AND L11-L19  
L21 3881 S L4 (L) RACT+NT/RL  
L22 431 S L11 (L) PREP+NT/RL  
L23 359 S L11 (L) PROC+NT/RL  
L24 561 S L21 AND L20  
L25 352 S L24 AND L22, L23  
L26 321 S L21 AND L22 AND L25  
L27 80 S L26 AND AIR  
L28 63 S L26 AND (OXYGEN OR O2)

FILE 'REGISTRY' ENTERED AT 07:46:02 ON 23 MAY 2006

L29 1 S OXYGEN/CN

FILE 'HCAPLUS' ENTERED AT 07:46:04 ON 23 MAY 2006

L30 18 S L29 AND L26  
L31 127 S L27, L28, L30  
L32 2 S L31 AND ?RESIN?  
L33 1 S L31 AND 4 VINYL PYRIDINE  
L34 1 S L31 AND ?VINYL PYRIDIN?

FILE 'REGISTRY' ENTERED AT 07:48:25 ON 23 MAY 2006

L35 1 S 9017-40-7  
L36 292 S 100-43-6/CRN AND C10H10 AND 46.150.18/RID

L37 4 S L36 AND 2/NC  
L38 4 S L35,L37  
L39 52 S L36 AND CL/ELS  
L40 3 S L39 AND CH3CL  
L41 7 S L38,L40  
E REILLEX  
L42 12 S E3  
L43 6 S L42 AND 1/NC  
L44 4 S L3 AND L42  
L45 13 S L41,L43,L44

FILE 'HCAPLUS' ENTERED AT 07:52:06 ON 23 MAY 2006

L46 1 S L45 AND L31  
L47 1 S L31 AND REILLEX  
L48 2 S L32-L34,L46,L47

FILE 'REGISTRY' ENTERED AT 07:52:43 ON 23 MAY 2006

L49 1 S 39429-11-3

FILE 'HCAPLUS' ENTERED AT 07:52:55 ON 23 MAY 2006

L50 1 S L49 AND L31  
L51 2 S L48,L50  
L52 125 S L31 NOT L51  
L53 111 S L52 AND (PY<=2002 OR PRY<=2002 OR AY<=2002)  
L54 109 S L52 AND (PD<=20020314 OR PRD<=20020314 OR AD<=20020314)  
L55 2 S L53 NOT L54  
L56 42 S L54 NOT P/DT  
L57 20 S L56 NOT CUMENE/TI  
SEL AN DN L57 1 13 14  
L58 3 S L57 AND E1-E9  
L59 22 S L56 NOT L57  
SEL DN AN L59 2 3 14 16  
L60 4 S L59 AND E10-E21  
L61 67 S L54 NOT L56  
SEL DN AN L61 1 5 7 10-12 14 36-38 46 53 57 58 60 61 63  
L62 17 S L61 AND E22-E72  
L63 2 S L1,L2 AND L20  
L64 27 S L51,L58,L60,L62,L63

FILE 'REGISTRY' ENTERED AT 08:14:38 ON 23 MAY 2006

L65 1 S OZONE/CN

FILE 'HCAPLUS' ENTERED AT 08:14:43 ON 23 MAY 2006

L66 4 S L26 AND (L65 OR O3 OR OZONE)  
L67 27 S L64 AND L1,L2,L9-L28,L30-L34,L46-L48,L50-L64,L66  
L68 0 S L67 AND ANHYDROUS  
L69 1 S L67 AND ANHYD?  
L70 27 S L67,L69

FILE 'REGISTRY' ENTERED AT 08:16:40 ON 23 MAY 2006

L71 1 S PHENOL/CN  
L72 1 S ACETONE/CN

FILE 'HCAPLUS' ENTERED AT 08:17:07 ON 23 MAY 2006

L73 416 S L20 AND (L71 OR PHENOL) AND (L72 OR ACETONE)  
L74 40 S L73 AND L26  
L75 36 S L74 AND (PY<=2002 OR PRY<=2002 OR AY<=2002)  
L76 26 S L75 AND L71(L)PREP+NT/RL AND L72(L)PREP+NT/RL  
L77 1 S L76 AND L70  
L78 25 S L76 NOT L77

L79 SEL DN AN L78 1 14 16 19 20-23 25  
L80 9 S L78 AND E73-E99  
L81 1 S L73 AND L1,L2  
36 S L70,L79,L80  
SEL HIT RN

FILE 'REGISTRY' ENTERED AT 08:23:27 ON 23 MAY 2006  
L82 12 S E100-E111

FILE 'REGISTRY' ENTERED AT 08:23:58 ON 23 MAY 2006

=> fil hcaplus  
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FILE COVERS 1907 - 23 May 2006 VOL 144 ISS 22  
FILE LAST UPDATED: 22 May 2006 (20060522/ED)

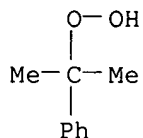
New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

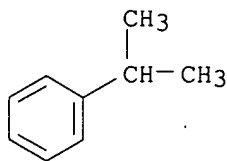
=> d l81 all hitstr tot

L81 ANSWER 1 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:224554 HCAPLUS  
DN 143:268683  
ED Entered STN: 15 Mar 2005  
TI Increasing the efficiency of the technological use of energy in the production of **isopropylbenzene hydroperoxide**  
AU Vachagina, E. K.; Plotnikov, V. V.; Nazmeev, Yu. G.  
CS Russia  
SO Izvestiya Vysshikh Uchebnykh Zavedenii, Problemy Energetiki (2002), (10-12), 112-115  
CODEN: IVUZC6  
PB Kazanskii Gosudarstvennyi Energeticheskii Universitet  
DT Journal  
LA Russian  
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 25  
AB A thermodyn. anal., based on determination of exergy balances of technol. equipments taking into account non-reversibility of processes, was conducted to evaluate energy losses and recommend technol. improvements leading to energy conservation in **isopropylbenzene hydroperoxide** production by oxidation of **isopropylbenzene** in air.

ST exergy analysis energy conservation **isopropylbenzene hydroperoxide** manuf  
 IT Energy conservation  
 Exergy  
 Oxidation  
 (increasing efficiency of technol. use of energy in production of **isopropylbenzene hydroperoxide** by oxidation of **isopropylbenzene** in air)  
 IT 80-15-9P, **Isopropylbenzene hydroperoxide**  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (increasing efficiency of technol. use of energy in production of **isopropylbenzene hydroperoxide** by oxidation of **isopropylbenzene** in air)  
 IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (increasing efficiency of technol. use of energy in production of **isopropylbenzene hydroperoxide** by oxidation of **isopropylbenzene** in air)  
 IT 80-15-9P, **Isopropylbenzene hydroperoxide**  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (increasing efficiency of technol. use of energy in production of **isopropylbenzene hydroperoxide** by oxidation of **isopropylbenzene** in air)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (increasing efficiency of technol. use of energy in production of **isopropylbenzene hydroperoxide** by oxidation of **isopropylbenzene** in air)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 2 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2004:389854 HCAPLUS  
 DN 140:408621  
 ED Entered STN: 13 May 2004  
 TI Cumene process for manufacturing phenol  
 IN Kimura, Yoshihide; Ikegami, Hideo  
 PA Mitsubishi Chemical Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 5 pp.



CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C0027-12

ICS C07C0015-44; C07C0037-74; C07C0039-04; C07C0049-08

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004137159	A2	20040513	JP 2002-301412	20021016 <--
PRAI	JP 2002-301412		20021016	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004137159	ICM	C07C0027-12
	ICS	C07C0015-44; C07C0037-74; C07C0039-04; C07C0049-08
	IPCI	C07C0027-12 [ICM,7]; C07C0015-44 [ICS,7]; C07C0037-74 [ICS,7]; C07C0039-04 [ICS,7]; C07C0049-08 [ICS,7]
	IPCR	C07C0015-00 [I,C*]; C07C0015-44 [I,A]; C07C0027-00 [I,C*]; C07C0027-12 [I,A]; C07C0037-00 [I,C*]; C07C0037-74 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]; C07C0049-00 [I,C*]; C07C0049-08 [I,A]
	FTERM	4H006/AA02; 4H006/AC12; 4H006/AC42; 4H006/AC44; 4H006/AD11; 4H006/BB61; 4H006/BD40; 4H006/BD51; 4H006/BE30; 4H006/FE13

AB In the title process comprising (1) supplying **cumene** and a mixture of oxygen and inert gas to the oxidation reactor to oxidize **cumene** and obtain a liquid containing **cumene hydroperoxide** (I) ; (2) separating unreacted **cumene** from the liquid obtained in step 1, and obtaining I; (3) producing a reaction liquid containing **phenol** (II) and **acetone** (III) by acid decomposition of **cumene hydroperoxide**; (4) distilling the reaction liquid (obtained in step 3) in a multistage distillation and obtaining purified II and III, the gas mixture (discharged from the oxidation reactor) with decreased concentration of oxygen

is

supplied to devices (in the process) which require inert gases.

ST **phenol** manuf; **cumene hydroperoxide** acid

decompn

IT Recycling

(cumene process for manufacturing **phenol** with recycling of oxygen-containing gas)IT 98-83-9P,  $\alpha$ -Methylstyrene, preparation

RL: BYP (Byproduct); PREP (Preparation)

(cumene process for manufacturing **phenol** with recycling of oxygen-containing gas)IT 67-64-1P, **Acetone**, preparation 108-95-2P,**Phenol**, preparation

RL: IMF (Industrial manufacture); PUR (Purification or recovery); PREP (Preparation)

(cumene process for manufacturing **phenol** with recycling of oxygen-containing gas)IT 98-82-8, **Cumene** 7782-44-7, Oxygen, reactions

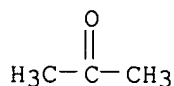
RL: RCT (Reactant); RACT (Reactant or reagent)

(cumene process for manufacturing **phenol** with recycling of oxygen-containing gas)IT 80-15-9P, **Cumene hydroperoxide**

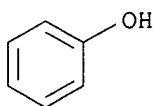
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(cumene process for manufacturing **phenol** with recycling of oxygen-containing gas)

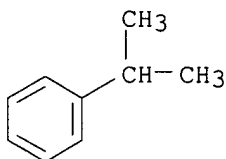
IT 67-64-1P, Acetone, preparation 108-95-2P,  
 Phenol, preparation  
 RL: IMF (Industrial manufacture); PUR (Purification or  
 recovery); PREP (Preparation)  
 (cumene process for manufacturing phenol with recycling  
 of oxygen-containing gas)  
 RN 67-64-1 HCAPLUS  
 CN 2-Propanone (9CI) (CA INDEX NAME)



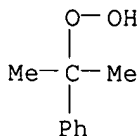
RN 108-95-2 HCAPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cumene process for manufacturing phenol with recycling  
 of oxygen-containing gas)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT 80-15-9P, Cumene hydroperoxide  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (cumene process for manufacturing phenol with recycling  
 of oxygen-containing gas)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 3 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2003:737706 HCAPLUS

DN 139:262465  
 ED Entered STN: 19 Sep 2003  
 TI **Cumene hydroperoxide** and its production  
 IN **Codignola, Franco**  
 PA Eurotecnica Development & Licensing S.P.A., Italy  
 SO PCT Int. Appl., 27 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C07C0045-53  
 ICS C07C0409-10; C07C0037-08  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 25, 38  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2003076381	A1	20030918	WO 2002-IT157	20020314 <--	
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW		
	RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG		
	AU 2002247980	A1	20030922	AU 2002-247980	20020314 <--	
	CN 1620416	A	20050525	CN 2002-828293	20020314 <--	
	US 2006014985	A1	20060119	US 2005-507227	20050511 <--	
PRAI	WO 2002-IT157	A	20020314	<--		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003076381	ICM	C07C0045-53
	ICS	C07C0409-10; C07C0037-08
	IPCI	C07C0045-53 [ICM,7]; C07C0409-10 [ICS,7]; C07C0037-08 [ICS,7]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
AU 2002247980	IPCI	C07C0045-53 [ICM,7]; C07C0409-10 [ICS,7]; C07C0037-08 [ICS,7]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
CN 1620416	IPCI	C07C0045-53 [ICM,7]; C07C0409-10 [ICS,7]; C07C0037-08 [ICS,7]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
US 2006014985	IPCI	C07C0041-50 [I,A]; C07C0409-00 [I,A]
	NCL	568/558.000

OS CASREACT 139:262465

AB **Cumene hydroperoxide** is produced by oxidizing **cumene** with **oxygen** or **air**, whereby this process is run in the presence of a basic medium insol. in the reaction environment, and such as not to release inorg. cations to the reaction environment. Such a basic medium is preferably a crosslinked 4-**vinylpyridine resin**. The **cumene**

hydroperoxide thus obtained is free of inorg. cations and has a reduced dimethylphenylcarbinol content compared to products of the prior art. An example was given which used **Reillex 402 resin**

ST **cumene hydroperoxide prodn vinylpyridine resin catalyst**

IT Peroxidation catalysts  
(hydroperoxidn.; production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

IT 9017-40-7, **Reillex 402 125200-80-8**,  
**Reillex HPQ 128452-02-8 145380-06-9**,  
**Reillex HP 601473-45-4, Reillex 402I**  
RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

IT 80-15-9P, **Cumene hydroperoxide**  
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
(production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

IT 98-82-8, **Cumene**  
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

IT 617-94-7P, Dimethylphenylcarbinol  
RL: BYP (Byproduct); EPR (Engineering process); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
(reduced formation of; in production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Franco, C; US 3171860 A 1965  
(2) Michel, Q; WO 9504717 A 1995 HCAPLUS  
(3) Sir Soc Italiana Resine Spa; GB 970945 A 1964 HCAPLUS

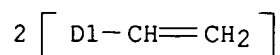
IT 9017-40-7, **Reillex 402 125200-80-8**,  
**Reillex HPQ 128452-02-8 145380-06-9**,  
**Reillex HP 601473-45-4, Reillex 402I**  
RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(production of **cumene hydroperoxide** from **cumene** in presence of **vinylpyridine resin catalyst**)

RN 9017-40-7 HCAPLUS

CN Pyridine, 4-ethenyl-, polymer with diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

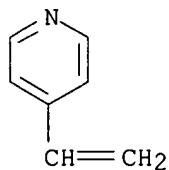
CRN 1321-74-0  
CMF C10 H10  
CCI IDS



CM 2

CRN 100-43-6

CMF C7 H7 N



RN 125200-80-8 HCAPLUS

CN Reillex HPQ (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

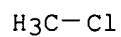
RN 128452-02-8 HCAPLUS

CN Pyridine, 4-ethenyl-, polymer with diethenylbenzene, compd. with chloromethane (9CI) (CA INDEX NAME)

CM 1

CRN 74-87-3

CMF C H3 Cl



CM 2

CRN 9017-40-7

CMF (C10 H10 . C7 H7 N)x

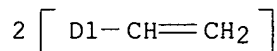
CCI PMS

CM 3

CRN 1321-74-0

CMF C10 H10

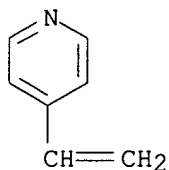
CCI IDS



CM 4

CRN 100-43-6

CMF C7 H7 N



RN 145380-06-9 HCAPLUS  
 CN Reillex HP (9CI) (CA INDEX NAME)

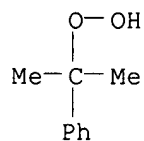
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 601473-45-4 HCAPLUS  
 CN Reillex 402I (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 80-15-9P, Cumene hydroperoxide  
 RL: EPR (Engineering process); IMF (Industrial  
 manufacture); PEP (Physical, engineering or chemical process)  
 ; PREP (Preparation); PROC (Process)  
 (production of cumene hydroperoxide from cumene  
 in presence of vinylpyridine resin catalyst)

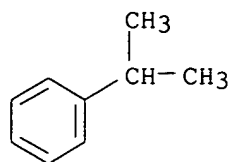
RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); RCT (Reactant); PROC (Process); RACT (Reactant or  
 reagent)

(production of cumene hydroperoxide from cumene  
 in presence of vinylpyridine resin catalyst)

RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 4 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2003:737703 HCAPLUS  
 DN 139:262464  
 ED Entered STN: 19 Sep 2003  
 TI Process for the synthesis of **phenol** and **acetone** from  
**cumene hydroperoxide** using acidic cation exchangers  
 IN **Codignola, Franco**  
 PA Eurotecnica Development & Licensing S.P.A., Italy  
 SO PCT Int. Appl., 17 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C07C0037-08  
 ICS C07C0045-53; C07C0039-04; C07C0049-08; B01J0031-10; B01J0019-00  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 23, 25, 48, 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003076376	A2	20030918	WO 2002-IT156	20020314
	WO 2003076376	A3	20031113		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2002249564	A1	20030922	AU 2002-249564	20020314
	EP 1492752	A2	20050105	EP 2002-718517	20020314
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
	CN 1620412	A	20050525	CN 2002-828294	20020314
	US 2005177004	A1	20050811	US 2003-507225	20020314
PRAI	WO 2002-IT156	A	20020314		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003076376	ICM	C07C0037-08
	ICS	C07C0045-53; C07C0039-04; C07C0049-08; B01J0031-10; B01J0019-00
	IPCI	C07C0037-08 [ICM,7]; C07C0045-53 [ICS,7]; C07C0039-04 [ICS,7]; C07C0049-08 [ICS,7]; B01J0031-10 [ICS,7]; B01J0019-00 [ICS,7]
	IPCR	B01J0008-20 [I,A]; B01J0008-20 [I,C*]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]

AU 2002249564 ECLA B01J008/20; C07C045/53+49/08  
 IPCI C07C0037-08 [ICM,7]; C07C0049-08 [ICS,7]; B01J0031-10 [ICS,7]; B01J0019-00 [ICS,7]; C07C0045-53 [ICS,7]; C07C0039-04 [ICS,7]  
 IPCR B01J0008-20 [I,A]; B01J0008-20 [I,C\*]; C07C0045-00 [I,C\*]; C07C0045-53 [I,A]  
 EP 1492752 IPCI C07C0037-08 [ICM,7]; C07C0045-53 [ICS,7]; C07C0039-04 [ICS,7]; C07C0049-08 [ICS,7]; B01J0031-10 [ICS,7]; B01J0019-00 [ICS,7]  
 IPCR B01J0008-20 [I,A]; B01J0008-20 [I,C\*]; C07C0045-00 [I,C\*]; C07C0045-53 [I,A]  
 CN 1620412 IPCI C07C0037-08 [ICM,7]; B01J0019-00 [ICS,7]; B01J0031-10 [ICS,7]; C07C0049-08 [ICS,7]; C07C0045-53 [ICS,7]; C07C0039-04 [ICS,7]  
 IPCR B01J0019-00 [I,A]; B01J0019-00 [I,C\*]; B01J0031-06 [I,C\*]; B01J0031-10 [I,A]; C07C0037-00 [I,C\*]; C07C0037-08 [I,A]; C07C0039-00 [I,C\*]; C07C0039-04 [I,A]; C07C0045-00 [I,C\*]; C07C0045-53 [I,A]; C07C0049-00 [I,C\*]; C07C0049-08 [I,A]  
 US 2005177004 IPCI C07C0037-08 [ICM,7]; C07C0045-55 [ICS,7]  
 NCL 568/485.000  
 OS CASREACT 139:262464  
 AB A process for the manufacture of **phenol** and **acetone** from **cumene hydroperoxide** comprises: (a) pretreating the **cumene hydroperoxide** feed with acidic cation-exchange resins (e.g., Amberlyst 18) to obtain **cumene hydroperoxide** free of inorg. cations; and (b) decomposing the treated **cumene hydroperoxide** in the presence of acidic resins, to yield **phenol** and **acetone** at an elevated temperature The spent cation exchangers are regenerated by contacting them with a sulfuric acid solution  
 ST **acetone phenol** manuf thermal decompn **cumene hydroperoxide**; acid cation exchanger treatment **cumene hydroperoxide** thermal decompn  
 IT Cation exchangers  
 (acidic; process for the synthesis of **phenol** and **acetone** from **cumene hydroperoxide** using acidic cation exchangers)  
 IT Ketones, preparation  
 RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (aliphatic, **acetone**; process for the synthesis of **phenol** and **acetone** from **cumene hydroperoxide** using acidic cation exchangers)  
 IT Hydroperoxides  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (**cumene hydroperoxide**; process for the synthesis of **phenol** and **acetone** from **cumene hydroperoxide** using acidic cation exchangers)  
 IT Polyoxyalkylenes, reactions  
 RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
 (fluorine- and sulfo-containing, ionomers; process for the synthesis of **phenol** and **acetone** from **cumene hydroperoxide** using)  
 IT **Phenols**, preparation



- RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (phenol; process for the synthesis of phenol and acetone from cumene hydroperoxide using acidic cation exchangers)
- IT Fluoropolymers, reactions  
 RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
 (polyoxyalkylene-, sulfo-containing, ionomers; process for the synthesis of phenol and acetone from cumene hydroperoxide using)
- IT Ionomers  
 RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
 (polyoxyalkylenes, fluorine- and sulfo-containing; process for the synthesis of phenol and acetone from cumene hydroperoxide using)
- IT Thermal decomposition  
 (process for the synthesis of phenol and acetone from cumene hydroperoxide using acidic cation exchangers and)
- IT Pyrolyzers  
 (process for the synthesis of phenol and acetone from cumene hydroperoxide using acidic cation exchangers in)
- IT 9003-53-6D, Polystyrene, sulfonated derivs. 9003-70-7D, Divinylbenzene-styrene copolymer, sulfonated derivs.  
 RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
 (acidic cation exchangers; process for the synthesis of phenol and acetone from cumene hydroperoxide using)
- IT 7664-93-9, Sulfuric acid, reactions  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent)  
 (catalyst regeneration agent; for the regeneration of spent acid cation exchangers used in the synthesis of phenol and acetone from cumene hydroperoxide)
- IT 9037-24-5, Amberlyst 15 143549-73-9, Amberlyst 18  
 RL: CAT (Catalyst use); EPR (Engineering process); PEP (Physical, engineering or chemical process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
 (process for the synthesis of phenol and acetone from cumene hydroperoxide using)
- IT 67-64-1P, Acetone, preparation 108-95-2P, Phenol, preparation  
 RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (process for the synthesis of phenol and acetone from cumene hydroperoxide using acidic cation exchangers)
- IT 80-15-9P, Cumene hydroperoxide  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); RCT (Reactant); PREP (Preparation)

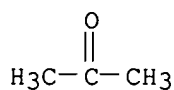
; **PROC (Process)**; **RACT** (Reactant or reagent)  
 (process for the synthesis of **phenol** and **acetone**  
 from **cumene hydroperoxide** using acidic cation  
 exchangers)

IT **67-64-1P, Acetone, preparation 108-95-2P,**  
**Phenol, preparation**

RL: **EPR** (Engineering process); **IMF** (Industrial manufacture); **PEP**  
 (Physical, engineering or chemical process); **PREP** (Preparation); **PROC**  
 (Process)  
 (process for the synthesis of **phenol** and **acetone**  
 from **cumene hydroperoxide** using acidic cation  
 exchangers)

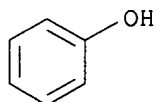
RN 67-64-1 HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



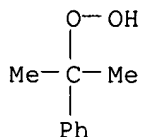
IT **80-15-9P, Cumene hydroperoxide**

RL: **EPR** (Engineering process); **PEP** (Physical, engineering  
 or chemical process); **PUR** (Purification or recovery);  
**PYP** (Physical process); **RCT** (Reactant); **PREP** (Preparation)  
 ; **PROC** (Process); **RACT** (Reactant or reagent)

(process for the synthesis of **phenol** and **acetone**  
 from **cumene hydroperoxide** using acidic cation  
 exchangers)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 5 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2003:646702 HCAPLUS

DN 139:180503

ED Entered STN: 19 Aug 2003

TI Process for oxidation of **cumene**

IN Oku, Noriaki; Ito, Sadaaki

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent  
 LA Japanese  
 IC ICM C07C0407-00  
 ICS C07C0409-10  
 CC 35-3 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 45

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003231674	A2	20030819	JP 2002-30733	20020207 <--
PRAI	JP 2002-30733		20020207	<--	

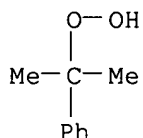
CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	JP 2003231674	ICM	C07C0407-00
		ICS	C07C0409-10
		IPCI	C07C0407-00 [ICM,7]; C07C0409-10 [ICS,7]
		IPCR	C07C0407-00 [I,A]; C07C0407-00 [I,C*]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
AB	In the process for manufacturing <b>cumene hydroperoxide</b> by oxidation of <b>cumene</b> by an <b>oxygen</b> -containing gas using a bubble tower reactor, said gas is supplied to said reactor at a speed of 0.02 m/s to 0.1 m/s inside the reactor. In the title process, the <b>cumene hydroperoxide</b> produced is reacted with propylene to give propylene oxide and cumyl alc., then cumyl alc. is subjected to hydrogenolysis to give <b>cumene</b> which is recycled to the bubble tower reactor. The title process gives <b>cumene hydroperoxide</b> in high yield.		
ST	<b>cumene</b> oxidn bubble tower reactor; hydrogenolysis cumyl alc		
IT	Reactors (bubble tower; oxidation of <b>cumene</b> in bubble tower reactor)		
IT	Hydrogenolysis (hydrogenolysis of cumyl alc.)		
IT	Oxidation (oxidation of <b>cumene</b> )		
IT	Recycling (recycling of <b>cumene</b> in process for producing propylene oxide by reacting <b>cumene hydroperoxide</b> with propylene)		
IT	536-60-7P, Cumyl alcohol RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (process for oxidation of <b>cumene</b> by <b>oxygen</b> -containing gas in bubble tower reactor)		
IT	80-15-9P, Cumene hydroperoxide RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (process for oxidation of <b>cumene</b> by <b>oxygen</b> -containing gas in bubble tower reactor)		
IT	75-56-9P, Propylene oxide, preparation RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation) (process for oxidation of <b>cumene</b> by <b>oxygen</b> -containing gas in bubble tower reactor)		
IT	98-82-8, Cumene 115-07-1, Propylene, reactions 7782-44-7, Oxygen, reactions RL: RCT (Reactant); RACT (Reactant or reagent) (process for oxidation of <b>cumene</b> by <b>oxygen</b> -containing gas in bubble tower reactor)		
IT	80-15-9P, Cumene hydroperoxide		

RL: IMF (Industrial manufacture); RCT (Reactant); SPN  
 (Synthetic preparation); PREP (Preparation); RACT (Reactant  
 or reagent)  
 (process for oxidation of **cumene** by **oxygen**-containing gas  
 in bubble tower reactor)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

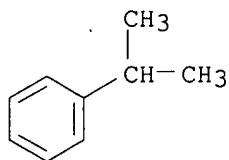


IT 98-82-8, Cumene 7782-44-7, Oxygen,  
 reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (process for oxidation of **cumene** by **oxygen**-containing gas  
 in bubble tower reactor)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



RN 7782-44-7 HCAPLUS

CN Oxygen (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 6 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:790254 HCAPLUS

DN 137:296556

ED Entered STN: 17 Oct 2002

TI Method and system for manufacturing **cumene hydroperoxide**  
 by the peroxidation of **cumene**

IN Fulmer, John William; Scott, Eugene Edward; Kight, William Dale

PA General Electric Company, USA

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM C07C0409-02

INCL 568571000

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 25, 47, 48

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 6465695 B1 20021015 US 2001-916775 20010727 <--  
 WO 2003011820 A1 20030213 WO 2002-US22083 20020609 <--  
 WO 2003011820 C1 20031211  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,  
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,  
 UA, UG, UZ, VN, YU, ZA, ZM, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB,  
 GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA,  
 GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 EP 1414793 A1 20040506 EP 2002-752279 20020709 <--  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK  
 CN 1556796 A 20041222 CN 2002-818614 20020709 <--  
 TW 229068 B1 20050311 TW 2002-91115858 20020716 <--  
 US 2003092943 A1 20030515 US 2002-225095 20020821 <--  
 US 6620974 B2 20030916  
 PRAI US 2001-916775 A 20010727 <--  
 WO 2002-US22083 W 20020609 <--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6465695	ICM	C07C0409-02
	INCL	568571000
	IPCI	C07C0409-02 [ICM,7]; C07C0409-00 [ICM,7,C*]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	NCL	568/571.000; 568/568.000; 568/569.000
	ECLA	C07C409/10
WO 2003011820	IPCI	C07C0409-10 [ICM,7]; C07C0409-00 [ICM,7,C*]; B01J0019-24 [ICS,7]
	ECLA	C07C409/10
EP 1414793	IPCI	C07C0409-10 [ICM,7]; C07C0409-00 [ICM,7,C*]; B01J0019-24 [ICS,7]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
CN 1556796	IPCI	C07C0409-10 [ICM,7]; C07C0409-00 [ICM,7,C*]; B01J0019-24 [ICS,7]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	ECLA	C07C409/10
TW 229068	IPCI	C07C0409-02 [ICS,7]; C07C0409-00 [ICS,7,C*]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
US 2003092943	IPCI	C07C0409-00 [ICM,7]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	NCL	568/568.000
	ECLA	C07C409/10

AB **Cumene hydroperoxide** is manufactured in high yield and selectivity by reacting **cumene** and **oxygen** in the presence of a water phase containing aqueous ammonia, and in the absence of an additive containing an alkali or alkaline earth metal, to form **cumene hydroperoxide**. A system for producing **cumene hydroperoxide** is described which comprises a **cumene** feed in fluid communication with a reactor having a **cumene hydroperoxide** oxidate outlet, an **oxygen** feed in fluid communication with the reactor, and an ammonia feed in fluid communication with the **cumene** feed and/or the reactor, where the **cumene** feed, the **oxygen** feed, the ammonia feed, and the reactor are free of an additive comprising an alkali or alkaline earth metal. Process flow diagrams are presented.

ST **cumene hydroperoxide** manuf; peroxidn manuf  
**cumene hydroperoxide**

IT Peroxidation  
 (method and system for manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

IT Alkali metal hydroxides  
 Alkali metal salts  
 Alkaline earth hydroxides  
 Alkaline earth salts  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent)  
 (neutralizing agents; in manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

IT **80-15-9P, Cumene hydroperoxide**  
 RL: EPR (Engineering process); IMF (Industrial  
 manufacture); PEP (Physical, engineering or chemical process)  
 ; PREP (Preparation); PROC (Process)  
 (method and system for manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

IT **98-82-8, Cumene**  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); RCT (Reactant); PROC (Process); RACT (Reactant or  
 reagent)  
 (method and system for manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

IT **7782-44-7, Oxygen, reactions**  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); RCT (Reactant); RGT (Reagent); PROC (Process); RACT (Reactant or  
 reagent)  
 (method and system for manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

IT **463-79-6D, Carbonic acid, Group IA or IIA carbonates, reactions**  
**497-19-8, Sodium carbonate, reactions 1336-21-6, Ammonium hydroxide**  
**7664-38-2D, Phosphoric acid, Group IA or IIA phosphates, reactions**  
**7664-41-7, Ammonia, reactions**  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical  
 process); RGT (Reagent); PROC (Process); RACT (Reactant or reagent)  
 (neutralizing agents; in manufacturing **cumene hydroperoxide**  
 by the peroxidn. of **cumene**)

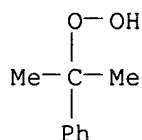
IT **7732-18-5, Water, processes**  
 RL: EPR (Engineering process); NUU (Other use, unclassified); PEP  
 (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (solvent; method and system for manufacturing **cumene**  
**hydroperoxide** by the peroxidn. of **cumene**)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

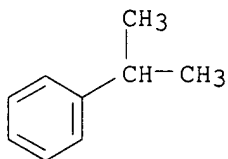
RE

- (1) Anon; RU 2146670 2000 HCAPLUS
- (2) Armstrong; US 3187055 A 1965 HCAPLUS
- (3) Calhoun; US 2663740 A 1953 HCAPLUS
- (4) Feder; US 3907901 A 1975 HCAPLUS
- (5) Gopinathan; US 6077977 A 2000 HCAPLUS
- (6) Iwane; US 5196598 A 1993 HCAPLUS
- (7) Reni; US 3523977 A 1970
- (8) Rovelli; US 2897239 A 1959 HCAPLUS
- (9) Saito; US 5512175 A 1996 HCAPLUS
- (10) Suda; US 3933921 A 1976 HCAPLUS
- (11) Tagamolila; US 5120902 A 1992 HCAPLUS
- (12) van der Weijst; US 4329514 A 1982 HCAPLUS
- (13) Zakoshansky; US 5767322 A 1998 HCAPLUS
- (14) Zakoshansky; US 5908962 A 1999 HCAPLUS

IT 80-15-9P, Cumene hydroperoxide  
 RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (method and system for manufacturing cumene hydroperoxide by the peroxidn. of cumene)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (method and system for manufacturing cumene hydroperoxide by the peroxidn. of cumene)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

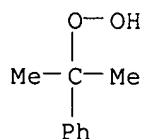


IT 7782-44-7, Oxygen, reactions  
 RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); RGT (Reagent); PROC (Process); RACT (Reactant or reagent)  
 (method and system for manufacturing cumene hydroperoxide by the peroxidn. of cumene)  
 RN 7782-44-7 HCAPLUS  
 CN Oxygen (8CI, 9CI) (CA INDEX NAME)



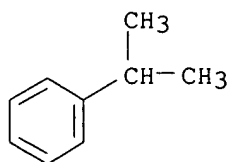
L81 ANSWER 7 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2002:168093 HCAPLUS  
 DN 136:371360  
 ED Entered STN: 08 Mar 2002  
 TI Principles of phenol and acetone production by the cumene method. Part 2. Oxidation of cumene and cleavage of cumene hydroperoxide  
 AU Lewandowski, Grzegorz; Milchert, Eugeniusz  
 CS Inst. Technol. Chem. Org., Politech. Szczecinska, Szczecin, 70-322, Pol.  
 SO Przemysl Chemiczny (2002), 81(2), 103-105  
 CODEN: PRCHAB; ISSN: 0033-2496

PB Wydawnictwo SIGMA-NOT  
 DT Journal; General Review  
 LA Polish  
 CC 45-0 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 25  
 AB A review on oxidation of **cumene** with **air** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to PhOH and acetone. The formation and utilization of byproducts from these reactions is also discussed.  
 ST review **cumene** oxidn **cumene hydroperoxide** prodn; **cumene hydroperoxide** degrdn phenol acetone prodn review  
 IT Decomposition  
 Oxidation  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 IT 67-64-1P, Acetone, preparation 108-95-2P, Phenol, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of **cumene** to **cumene hydroperoxide** and cleavage of **cumene hydroperoxide** to phenol and acetone)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)





L81 ANSWER 8 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2001:896246 HCAPLUS  
 DN 136:249341  
 ED Entered STN: 13 Dec 2001  
 TI New **cumene**-oxidation systems **O2** activator effects and radical stabilizer effects  
 AU Matsui, S.; Fujita, T.  
 CS Material Science Laboratory, Mitsui Chemicals, Inc., Chiba, Sodegaura City, 299-0265, Japan  
 SO Catalysis Today (2001), 71(1-2), 145-152  
 CODEN: CATTEA; ISSN: 0920-5861  
 PB Elsevier Science B.V.  
 DT Journal  
 LA English  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 25  
 AB For the purpose of increasing the efficiency of **cumene hydroperoxide** (CHP) production, two approaches, (A) increasing CHP generation rate by the acceleration of rate-determining step vis-a'-vis CHP formation using **O2** activators, and (B) increasing CHP selectivity by the mitigation of side reactions, were carried out. As for **O2** activators, we found that a new Cu(II) complex having a pyridine-imine chelate ligand (TRIP) increased CHP formation rate with no practical decrease in CHP selectivity. Thus, TRIP displayed higher CHP formation rate and selectivity than those for conventional auto-oxidation at 90°C. Regarding the mitigation of side reactions, we focused on the reaction of CHP with a cumyl radical, resulting in a byproduct formation. For suppressing this reaction, 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) was investigated as a radical stabilizer. As a result, TEMPO provided higher CHP selectivity compared to that of auto-oxidation at the same CHP formation rate. Therefore, two methods for increasing the efficiency of CHP production have been demonstrated.  
 ST oxidn **cumene** activator **cumene hydroperoxide**  
 prepn; copper complex catalyst auto oxidn **cumene**; cobalt complex catalyst auto oxidn **cumene**  
 IT Autooxidation  
 Autooxidation catalysts  
 (**oxygen** activator effects and radical stabilizer effects on oxidation of **cumene** to **cumene hydroperoxide**)  
 IT 504-29-0, 2-Aminopyridine 5431-44-7, 2,6-Pyridinedicarboxaldehyde 10563-26-5, N,N'-Bis(3-aminopropyl)ethylenediamine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in catalyst preparation; **oxygen** activator effects and radical stabilizer effects on oxidation of **cumene** to **cumene hydroperoxide**)  
 IT 71840-19-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (ligand; **oxygen** activator effects and radical stabilizer effects on oxidation of **cumene** to **cumene**)

**hydroperoxide)**

IT 14167-18-1, Cobalt salen 14172-90-8, (Tetraphenylporphinato)cobalt  
 RL: CAT (Catalyst use); USES (Uses)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of **cumene** to **cumene hydroperoxide**)

IT 147419-30-5P 404028-79-1P 404028-81-5P 404028-83-7P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);  
 USES (Uses)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of **cumene** to **cumene hydroperoxide**)

IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of **cumene** to **cumene hydroperoxide**)

IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of **cumene** to **cumene hydroperoxide**)

IT 2564-83-2, 2,2,6,6-Tetramethyl-1-piperidinyloxy  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (radical stabilizer; oxygen activator effects and radical  
 stabilizer effects on oxidation of **cumene** to **cumene  
 hydroperoxide**)

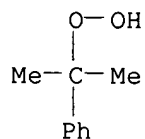
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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- (15) Stewart, J; J Comput Chem 1989, V10, P210
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- (17) Tai, A; J Am Chem Soc 1986, V108, P5006 HCAPLUS
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- (19) Veregin, R; Macromoleeules 1994, V27, P7228
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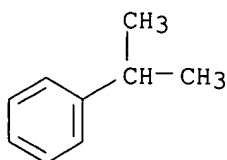
IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of **cumene** to **cumene hydroperoxide**)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxygen activator effects and radical stabilizer effects on  
 oxidation of cumene to cumene hydroperoxide)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 9 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2001:785348 HCAPLUS  
 DN 135:305480  
 ED Entered STN: 30 Oct 2001  
 TI Cumene hydroperoxide production process  
 IN Zakoshanskii, V. M.; Gryaznov, A. K.; Vasil'eva, I. I.  
 PA Russia  
 SO Russ., No pp. given  
 CODEN: RUXXE7  
 DT Patent  
 LA Russian  
 IC ICM C07C0407-00  
 ICS C07C0409-10  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RU 2146670	C1	20000320	RU 1998-108236	19980429 <--
PRAI	RU 1998-108236		19980429	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
RU 2146670	ICM	C07C0407-00
	ICS	C07C0409-10
	IPCI	C07C0407-00 [ICM,7]; C07C0409-10 [ICS,7]
	IPCR	C07C0407-00 [I,A]; C07C0407-00 [I,C*]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]

AB Emulsion-free two-stage air oxidation of cumene in absence of initiators, catalysts, additives, and alkali agents in at least two reactor system is described. In the first reactor, cumene conversion at temperature up to 111-95° is maintained at the level of at least 16%. Process is carried out in countercurrent reactor using pure alkali-free cumene. Oxidation products from the first-stage are treated with ammonium hydroxide solution until pH at least 8 is reached. When two or more second-stage reactors are available, oxidation products are treated in each subsequent reactor of the system. Conversion of cumene in the second oxidation stage is maintained at up to 25 wt % at temperature at least 100-85 C, oxidation charge and oxidizing agent being supplied concurrently. In all first- and second-stage reactors, pressure is maintained at least 4 atm and molar ratio of supplied oxygen to maximally consumed oxygen is maintained within a range of 1.12-1.30. Oxidation products from the last second-stage oxidation reactor are distilled to give industrial-grade (63-93%) cumene

**hydroperoxide.** Excessive **cumene** is returned into process to be treated with aqueous ammonium solution to pH 9-10. Recycle **cumene** from hydrogenation stage and fresh **cumene** are treated with mixture of 5-10% aqueous NaOH solution and 5-10-% aqueous sodium carbonate

solution Combined streams of the above-mentioned **cumenes** are washed with water at **cumene**-to-water ratio 1: (0.15-0.20). Concentration of **cumene hydroperoxide** in product rises with rate 2.5 to 4.5% per h, while selectivity is not below 94 mol % and **cumene** conversion 21-22 mol %.

ST **cumene hydroperoxide** prodn oxidn **cumene**

IT Oxidation

(production of **cumene hydroperoxide** by oxidation of **cumene**)

IT 80-15-9P, Cumene hydroperoxide

RL: IMF (Industrial manufacture); PREP (Preparation)  
(**cumene hydroperoxide** production process)

IT 98-82-8, Cumene

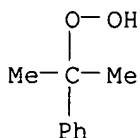
RL: RCT (Reactant); RACT (Reactant or reagent)  
(production of **cumene hydroperoxide** by oxidation of **cumene**)

IT 80-15-9P, Cumene hydroperoxide

RL: IMF (Industrial manufacture); PREP (Preparation)  
(**cumene hydroperoxide** production process)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

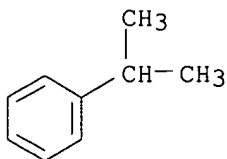


IT 98-82-8, Cumene

RL: RCT (Reactant); RACT (Reactant or reagent)  
(production of **cumene hydroperoxide** by oxidation of **cumene**)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 10 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:731523 HCAPLUS

DN 133:311127

ED Entered STN: 17 Oct 2000

TI Production method of hydroperoxides with high selectivity

IN Kuroda, Hiroshi; Yamazaki, Koichi; Matsuo, Hideki

PA Mitsui Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C0407-00

ICS C07C0409-10

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000290248	A2	20001017	JP 1999-95546	19990401 <--
PRAI	JP 1999-95546		19990401	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2000290248	ICM	C07C0407-00
	ICS	C07C0409-10
	IPCI	C07C0407-00 [ICM,7]; C07C0409-10 [ICS,7]
	IPCR	C07C0407-00 [I,A]; C07C0407-00 [I,C*]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]

OS MARPAT 133:311127

AB Title method, comprising oxidation of a hydrocarbon with a gas containing **oxygen**, is characterized by actively removing an organic acid byproduct from the oxidation reaction system during oxidation reaction and selective conversion of the hydrocarbon to the corresponding hydroperoxide.

ST hydroperoxide selective prepn removing org acid byproduct

IT Hydroperoxides

RL: IMF (Industrial manufacture); PREP (Preparation)

(organic; preparation method of hydroperoxides with high selectivity comprising

oxidation of hydrocarbons while removing organic acid byproducts)

IT Oxidation

(preparation method of hydroperoxides with high selectivity comprising

oxidation of hydrocarbons while removing organic acid byproducts)

IT Carboxylic acids, preparation

RL: BYP (Byproduct); REM (Removal or disposal); PREP (Preparation); PROC (Process)

(preparation method of hydroperoxides with high selectivity comprising oxidation of hydrocarbons while removing organic acid byproducts)

IT Hydrocarbons, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation method of hydroperoxides with high selectivity comprising oxidation of hydrocarbons while removing organic acid byproducts)

IT Extraction

(with water; preparation method of hydroperoxides with high selectivity comprising oxidation of hydrocarbons while removing organic acid byproducts by)

IT 64-18-6P, Formic acid, preparation 64-19-7P, Acetic acid, preparation

RL: BYP (Byproduct); REM (Removal or disposal); PREP (Preparation); PROC (Process)

(preparation method of hydroperoxides with high selectivity comprising oxidation of hydrocarbons while removing organic acid byproducts)

IT 80-15-9P, Cumene hydroperoxide

RL: IMF (Industrial manufacture); PUR (Purification or recovery); PREP (Preparation)

(preparation method of hydroperoxides with high selectivity comprising oxidation of hydrocarbons while removing organic acid byproducts)

IT 98-82-8, Cumene 99-62-7, m-Diisopropylbenzene

100-18-5, p-Diisopropylbenzene 717-74-8, 1,3,5-Triisopropylbenzene 25155-15-1, Cymene 25640-78-2, Isopropylbiphenyl 29253-36-9,

Isopropyl-naphthalene 36876-13-8, Diisopropylbiphenyl 38640-62-9,  
Diisopropyl-naphthalene

RL: **RCT (Reactant); RACT (Reactant or reagent)**

(preparation method of hydroperoxides with high selectivity comprising  
oxidation of hydrocarbons while removing organic acid byproducts)

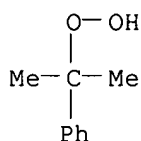
IT **80-15-9P, Cumene hydroperoxide**

RL: **IMF (Industrial manufacture); PUR (Purification or  
recovery); PREP (Preparation)**

(preparation method of hydroperoxides with high selectivity comprising  
oxidation of hydrocarbons while removing organic acid byproducts)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



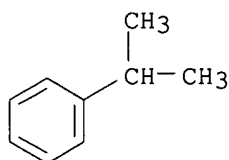
IT **98-82-8, Cumene**

RL: **RCT (Reactant); RACT (Reactant or reagent)**

(preparation method of hydroperoxides with high selectivity comprising  
oxidation of hydrocarbons while removing organic acid byproducts)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 11 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN **2000:585426** HCAPLUS

DN **133:179291**

ED Entered STN: 23 Aug 2000

TI Manufacture of hydroperoxides

IN Kuroda, Hiroshi; Ishibashi, Seian; Kato, Hoji; Fujita, Terunori

PA Mitsui Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C0407-00

ICS C07C0409-08; C07C0409-10; C07C0409-12

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000229938	A2	20000822	JP 1999-29772	19990208 <--
PRAI	JP 1999-29772		19990208	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 2000229938 ICM C07C0407-00  
 ICS C07C0409-08; C07C0409-10; C07C0409-12  
 IPCI C07C0407-00 [ICM,7]; C07C0409-08 [ICS,7]; C07C0409-10 [ICS,7]; C07C0409-12 [ICS,7]  
 IPCR C07C0407-00 [I,A]; C07C0407-00 [I,C\*]; C07C0409-00 [I,C\*]; C07C0409-08 [I,A]; C07C0409-10 [I,A]; C07C0409-12 [I,A]

OS MARPAT 133:179291

AB In manufacture of hydroperoxides by blowing O-containing gases on hydrocarbon-containing liquid phases at 40-120°, high reaction rate and high selectivity are achieved by controlling the difference between maximum and min. reaction temperature and vibrating periodically. Heating a mixture of 212 g **cumene** and 38 g **cumene hydroperoxide** in a reactor at 100-110° with 4 period/h under 0.69 MPa pressure, blowing with 4,000-mL/min **air** on the mixture, and oxidizing over 1.5 h gave 88.5 mol% **cumene hydroperoxide** with 4.9% per h accumulation rate.

ST efficiency hydroperoxide manuf reaction temp range periodical vibration; oxidn arylalkyl hydrocarbon manuf hydroperoxide

IT Aromatic hydrocarbons, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkyl, aryl alkyl; oxidation of alkyl arenes at controlled and periodically vibrating temperature range for manufacture of hydroperoxides with high reaction rate)

IT Oxidation  
 (oxidation of alkyl arenes at controlled and periodically vibrating temperature range for manufacture of hydroperoxides with high reaction rate)

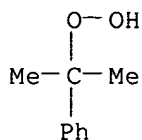
IT **80-15-9P, Cumene hydroperoxide** 26444-17-7P,  
 Cymene hydroperoxide  
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (oxidation of alkyl arenes at controlled and periodically vibrating temperature range for manufacture of hydroperoxides with high reaction rate)

IT **98-82-8, Cumene** 99-62-7, m-Diisopropylbenzene  
 100-18-5, p-Diisopropylbenzene 717-74-8, 1,3,5-Triisopropylbenzene  
 25155-15-1, Cymene 25640-78-2, Isopropylbiphenyl 29253-36-9,  
 Isopropyl-naphthalene 36876-13-8, Diisopropylbiphenyl 38640-62-9,  
 Diisopropyl-naphthalene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of alkyl arenes at controlled and periodically vibrating temperature range for manufacture of hydroperoxides with high reaction rate)

IT **80-15-9P, Cumene hydroperoxide**  
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
 (oxidation of alkyl arenes at controlled and periodically vibrating temperature range for manufacture of hydroperoxides with high reaction rate)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene

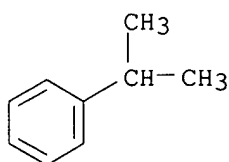
RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of alkyl arenes at controlled and periodically vibrating temperature

range for manufacture of hydroperoxides with high reaction rate)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 12 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:585425 HCAPLUS

DN 133:179290

ED Entered STN: 23 Aug 2000

TI Manufacture of hydroperoxides

IN Kuroda, Hiroshi; Hirokane, Shinya; Takai, Toshihiro; Kato, Hoji; Fujita, Terunori

PA Mitsui Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C0407-00

ICS C07C0409-02; C07C0409-08; C07C0409-10

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000229937	A2	20000822	JP 1999-29771	19990208 <--
PRAI	JP 1999-29771		19990208	<--	

CLASS

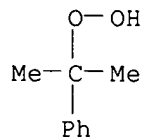
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2000229937	ICM	C07C0407-00
	ICS	C07C0409-02; C07C0409-08; C07C0409-10
	IPCI	C07C0407-00 [ICM,7]; C07C0409-02 [ICS,7]; C07C0409-08 [ICS,7]; C07C0409-10 [ICS,7]
	IPCR	C07C0407-00 [I,A]; C07C0407-00 [I,C*]; C07C0409-00 [I,C*]; C07C0409-02 [I,A]; C07C0409-08 [I,A]; C07C0409-10 [I,A]

OS MARPAT 133:179290

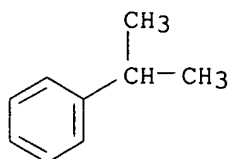
AB In manufacture of hydroperoxides by blowing O-containing gases on hydrocarbon-containing liquid phases, high reaction rate and high selectivity are achieved by continuously stripping organic acids (byproducts) from the



- reactors. Heating a mixture of 212 g **cumene** and 38 g **cumene hydroperoxide** in a reactor at 100° under 0.69 MPa pressure, blowing with 1,200-mL/min **air** on the mixture, blowing 1,200-mL/min N to the gas phase, and oxidizing over 1.5 h gave 89 mol% **cumene hydroperoxide** with 4.4% per h accumulation rate, vs., 88 and 3.9, resp., without the blowing of N.
- ST hydroperoxide manuf continuous removal org acid byproduct; nitrogen blowing high efficiency hydroperoxide manuf; oxidn arylalkyl hydrocarbon manuf hydroperoxide
- IT Aromatic hydrocarbons, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(alkyl, aryl alkyl; oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- IT Oxidation  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- IT **80-15-9P, Cumene hydroperoxide**  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- IT **98-82-8, Cumene** 99-62-7, m-Diisopropylbenzene  
100-18-5, p-Diisopropylbenzene 717-74-8, 1,3,5-Triisopropylbenzene  
25155-15-1, Cymene 25640-78-2, Isopropylbiphenyl 29253-36-9,  
Isopropyl-naphthalene 36876-13-8, Diisopropylbiphenyl 38640-62-9,  
Diisopropyl-naphthalene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- IT 7727-37-9, Nitrogen, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- IT **80-15-9P, Cumene hydroperoxide**  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- RN 80-15-9 HCAPLUS
- CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



- IT **98-82-8, Cumene**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of alkyl arenes with continuous removal of organic acids for manufacture of hydroperoxides with high reaction rate)
- RN 98-82-8 HCAPLUS
- CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 13 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 2000:415550 HCAPLUS  
 DN 133:43305  
 ED Entered STN: 22 Jun 2000  
 TI Method for preparing hydroperoxides by oxygenation  
 IN Gopinathan, Sarada; Fulmer, John William; Gopinathan, Changaramponnath;  
 Schmidhauser, John Christopher  
 PA General Electric Co., USA  
 SO U.S., 3 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C07G0409-02  
 INCL 568571000  
 CC 25-11 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 Section cross-reference(s): 45  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6077977	A	20000620	US 1998-88021	19980601 <--
	SG 71875	A1	20000418	SG 1998-5180	19981204 <--
	CA 2255484	AA	19990617	CA 1998-2255484	19981210 <--
	CN 1230538	A	19991006	CN 1998-125379	19981216 <--
	BR 9805303	A	20000201	BR 1998-5303	19981216 <--
PRAI	IN 1997-DE2390	A	19971217	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6077977	ICM	C07G0409-02
	INCL	568571000
	IPCI	C07G0409-02 [ICM,7]
	IPCR	C07C0409-00 [I,C*]; C07C0409-08 [I,A]; C07C0409-10 [I,A]
	NCL	568/571.000; 568/568.000
	ECLA	C07C409/08; C07C409/10
SG 71875	IPCI	C07C0049-08; C07C0409-10; C07C0407-00
CA 2255484	IPCI	C07C0409-10; C07C0407-00
CN 1230538	IPCI	C07C0407-00 [ICM,6]; C07C0409-02 [ICS,6]
	IPCR	C07C0409-00 [I,C*]; C07C0409-08 [I,A]; C07C0409-10 [I,A]
BR 9805303	IPCI	C07C0409-10
	IPCR	C07C0409-00 [I,C*]; C07C0409-08 [I,A]; C07C0409-10 [I,A]

OS CASREACT 133:43305; MARPAT 133:43305

AB Aryldialkylmethanes such as **cumene** are converted to the corresponding hydroperoxides by reaction with **oxygen** in the presence of a promoter which may be an alkali metal borate such as borax, an alkali metal salt of a polymer such as an acrylic polymer, or an alkaline reagent in combination with a specific proportion of added water or water of hydration, also exemplified by borax. High yields of the hydroperoxide

are obtained, particularly when the promoter includes water. E.g.,  
**air** was passed into a mixture of **cumene**, solid borax, and  
**cumene hydroperoxide** (2%, a copromoter) to give 57.82 %  
 conversion to **cumene hydroperoxide** and 87.88 %  
 selectivity.

ST aryldialkylmethane oxidn; hydroperoxide prepn

IT Oxidation

Oxidation catalysts

(preparation of **cumene hydroperoxide** by reaction of  
**cumene** with O2 in presence of promoter)

IT 497-19-8, Sodium carbonate, uses 1303-96-4, Borax 25987-30-8

RL: CAT (Catalyst use); USES (Uses)

(preparation of **cumene hydroperoxide**)

IT 80-15-9P, **Cumene hydroperoxide**

RL: IMF (Industrial manufacture); SPN (Synthetic  
 preparation); PREP (Preparation)

(preparation of **cumene hydroperoxide**)

IT 7732-18-5, Water, uses

RL: NUU (Other use, unclassified); USES (Uses)

(preparation of **cumene hydroperoxide**)

IT 98-82-8, **Cumene**

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of **cumene hydroperoxide**)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Angstadt; US 4182909 1980 HCAPLUS
- (2) Anon; DE 924449 1955 HCAPLUS
- (3) Anon; EP 0368292 1989 HCAPLUS
- (4) Anon; EP 2708603 1993
- (5) Armstrong; US 2619510 1952 HCAPLUS
- (6) Armstrong; US 2632772 1953 HCAPLUS
- (7) Armstrong; US 2632773 1953 HCAPLUS
- (8) Armstrong; US 3187055 1965 HCAPLUS
- (9) Bichet; US 3141046 1964
- (10) Calhoun; US 2663740 1953 HCAPLUS
- (11) Codignola; US 3171860 1965
- (12) Dougherty; US 2790004 1957 HCAPLUS
- (13) Erickson; US 2867666 1959 HCAPLUS
- (14) Feder; US 3907901 1975 HCAPLUS
- (15) Hsu; J Mol Catal A: Chem 1997, P109 HCAPLUS
- (16) Leacock; US 4263448 1981 HCAPLUS
- (17) Lorand; US 2548435 1951 HCAPLUS
- (18) Lorand; US 2713599 1955 HCAPLUS
- (19) Mikhailovich; US 5767322 1998 HCAPLUS
- (20) Reni; US 3523977 1970
- (21) Rindtorff; US 2827493 1958 HCAPLUS
- (22) Rovelli; US 2897239 1959 HCAPLUS
- (23) Shiffler; US 2829173 1958 HCAPLUS
- (24) Stibrany; US 5183945 1993 HCAPLUS
- (25) Suda; US 3933921 1976 HCAPLUS
- (26) Tagamolila; US 5120902 1992 HCAPLUS
- (27) Velenyi; US 4299991 1981 HCAPLUS
- (28) Young; US 4230894 1980 HCAPLUS

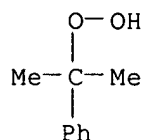
IT 80-15-9P, **Cumene hydroperoxide**

RL: IMF (Industrial manufacture); SPN (Synthetic  
 preparation); PREP (Preparation)

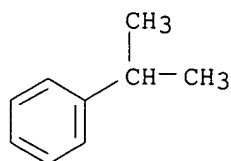
(preparation of **cumene hydroperoxide**)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of cumene hydroperoxide)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 14 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1998:406294 HCAPLUS  
 DN 129:55731  
 ED Entered STN: 02 Jul 1998  
 TI Improved procedure for production of phenol and acetone  
 from the cleavage of cumene hydroperoxide  
 IN Zakosanskiy, Vladimir Micailovi; Griaznov, Andrej Konstantinovic; Van  
 Barnefeld, Heinrich; Kleine-Boymann, Michael; Michalik, Christian;  
 Vasilieva, Irina Ivanova; Youriev, Youry Nikolaevitch; Gerlich, Otto;  
 Kleinloh, Werner  
 PA Illa International Ltd., Russia; Phenolchemie G.m.b.h. und Co. K.-G.  
 SO Ger. Offen., 26 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C07C0027-10  
 ICS C07C0027-26; C07C0039-04; C07C0049-08; C07C0409-10; C07C0409-16;  
 C07C0407-00  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 23, 25, 48  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19755026	A1	19980618	DE 1997-19755026	19971211 <--
	RU 2141938	C1	19991127	RU 1996-123606	19961215 <--
	CA 2274976	AA	19980625	CA 1997-2274976	19971210 <--
	WO 9827039	A1	19980625	WO 1997-EP6905	19971210 <--
	W: AM, AU, AZ, BG, BR, BY, CA, CN, GE, HU, ID, IL, JP, KG, KR, KZ,				
	MD, MN, MX, NO, PL, RO, RU, SG, SK, TJ, TM, UA, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9857559	A1	19980715	AU 1998-57559	19971210 <--
	EP 944567	A1	19990929	EP 1997-953777	19971210 <--
	EP 944567	B1	20010404		
	R: BE, DE, ES, FR, GB, IT, NL, SE, PT, FI				
	CN 1240417	A	20000105	CN 1997-180574	19971210 <--
	CN 1098244	B	20030108		

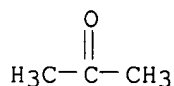
BR 9713580	A	20000314	BR 1997-13580	19971210 <--
JP 2001506251	T2	20010515	JP 1998-527271	19971210 <--
ES 2157609	T3	20010816	ES 1997-953777	19971210 <--
PT 944567	T	20010830	PT 1997-953777	19971210 <--
SK 283322	B6	20030603	SK 1999-790	19971210 <--
PL 189640	B1	20050930	PL 1997-334097	19971210 <--
TW 409117	B	20001021	TW 1998-87102965	19980302 <--
BG 103486	A	20000229	BG 1999-103486	19990614 <--
BG 63366	B1	20011130		
KR 2000057572	A	20000925	KR 1999-705328	19990615 <--
US 6225513	B1	20010501	US 1999-331019	19990915 <--
PRAI RU 1996-123606	A	19961215	<--	
WO 1997-EP6905	W	19971210	<--	

## CLASS

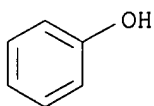
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 19755026	ICM	C07C0027-10
	ICS	C07C0027-26; C07C0039-04; C07C0049-08; C07C0409-10; C07C0409-16; C07C0407-00
	IPCI	C07C0027-10 [ICM,6]; C07C0027-26 [ICS,6]; C07C0027-00 [ICS,6,C*]; C07C0039-04 [ICS,6]; C07C0039-00 [ICS,6,C*]; C07C0049-08 [ICS,6]; C07C0049-00 [ICS,6,C*]; C07C0409-10 [ICS,6]; C07C0409-16 [ICS,6]; C07C0409-00 [ICS,6,C*]; C07C0407-00 [ICS,6]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
RU 2141938	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0037-08 [ICM,6]; C07C0037-00 [ICM,6,C*]; C07C0045-53 [ICS,6]; C07C0045-00 [ICS,6,C*]; C07C0039-04 [ICS,6]; C07C0039-00 [ICS,6,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
CA 2274976	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0039-04 [ICM,6]; C07C0039-00 [ICM,6,C*]; C07C0049-08 [ICS,6]; C07C0049-00 [ICS,6,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
WO 9827039	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0039-04 [ICM,6]; C07C0039-00 [ICM,6,C*]; C07C0049-08 [ICS,6]; C07C0049-00 [ICS,6,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
AU 9857559	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0039-04 [ICM,6]; C07C0039-00 [ICM,6,C*]; C07C0049-08 [ICS,6]; C07C0049-00 [ICS,6,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
EP 944567	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0039-04 [ICM,6]; C07C0039-00 [ICM,6,C*]; C07C0049-08 [ICS,6]; C07C0049-00 [ICS,6,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
CN 1240417	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*];

		C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
BR 9713580	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
JP 2001506251	IPCI	C07C0027-00 [ICM,7]; C07C0037-08 [ICS,7]; C07C0037-00 [ICS,7,C*]; C07C0039-04 [ICS,7]; C07C0039-00 [ICS,7,C*]; C07C0045-53 [ICS,7]; C07C0045-00 [ICS,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]; C07B0061-00 [ICS,7]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
ES 2157609	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
PT 944567	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
SK 283322	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
PL 189640	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
TW 409117	IPCI	C07C0027-00 [ICM,7]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
BG 103486	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]; C07C0049-08 [ICS,7]; C07C0049-00 [ICS,7,C*]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
KR 2000057572	IPCI	C07C0039-04 [ICM,7]; C07C0039-00 [ICM,7,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
US 6225513	IPCI	C07C0037-08 [ICM,7]; C07C0037-00 [ICM,7,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]; C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	NCL	568/798.000; 568/385.000; 585/435.000
	ECLA	C07C037/08; C07C045/53+49/08; C07C409/10
AB	Phenol and acetone are prepared in high yield and selectivity by the oxidation of cumene to tech.-grade cumene hydroperoxide, having 21-30% cumene content, followed by catalytic cleavage of the cumene hydroperoxide to the title products. A process flow diagram is presented.	
ST	cumene hydroperoxide cleavage prepn acetone phenol	
IT	Fragmentation reaction (of cumene hydroperoxide into phenol and acetone)	
IT	Peroxidation (of cumene to cumene hydroperoxide in the	

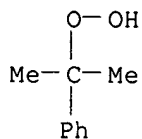
- manufacture of **phenol** and **acetone**)
- IT 80-43-3P, Dicumyl peroxide 617-94-7P, Dimethylphenylcarbinol  
 RL: BYP (Byproduct); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- IT 67-64-1P, Acetone, preparation 108-95-2P, Phenol, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- IT 98-82-8, Cumene 7664-93-9, Sulfuric acid, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- IT 67-64-1P, Acetone, preparation 108-95-2P, Phenol, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- RN 67-64-1 HCAPLUS  
 CN 2-Propanone (9CI) (CA INDEX NAME)



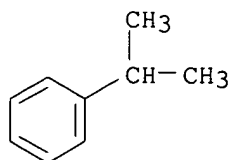
- RN 108-95-2 HCAPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



- IT 80-15-9P, Cumene hydroperoxide  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (improved procedure for production of **phenol** and **acetone** from the cleavage of **cumene hydroperoxide**)
- RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



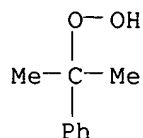
IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (improved procedure for production of phenol and acetone  
 from the cleavage of cumene hydroperoxide)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 15 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1992:533293 HCAPLUS  
 DN 117:133293  
 ED Entered STN: 04 Oct 1992  
 TI Phenol-acetone process: cumene oxidation  
 kinetics and industrial plant simulation  
 AU Andriago, P.; Caimi, A.; Cavalieri d'Oro, P.; Fait, A.; Roberti, L.;  
 Tampieri, M.; Tartari, V.  
 CS EniChem ANIC s.r.l., Res. Cent., Bollate MI, 20021, Italy  
 SO Chemical Engineering Science (1992), 47(9-11), 2511-16  
 CODEN: CESCAC; ISSN: 0009-2509  
 DT Journal  
 LA English  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 AB In order to optimize the performance of an industrial PhOH plant,  
 cumene oxidation and gas-liquid loop reactors were studied on a laboratory  
 scale. Both the kinetic and the fluid dynamics models were developed and  
 combined to give the industrial reactor model.  
 ST cumene oxidn kinetics optimization; phenol  
 acetone prodn optimization  
 IT Kinetics of oxidation  
 (of cumene to acetone and phenol,  
 optimization of production in relation to)  
 IT Optimization  
 (of oxidation, of cumene to phenol and acetone  
 )  
 IT 80-15-9P, Cumene hydroperoxide  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or  
 reagent)  
 (formation and decomposition of, kinetic model for)  
 IT 98-82-8, Cumene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, in production of phenol and acetone,  
 optimization of, kinetic model for)  
 IT 67-64-1P, Acetone, preparation 108-95-2P,  
 Phenol, preparation  
 RL: PREP (Preparation)  
 (production of, from cumene, optimization of, kinetic model for)  
 IT 80-15-9P, Cumene hydroperoxide  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or  
 reagent)  
 (formation and decomposition of, kinetic model for)  
 RN 80-15-9 HCAPLUS



CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

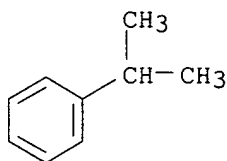


IT 98-82-8, Cumene

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, in production of phenol and acetone,  
optimization of, kinetic model for)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT 67-64-1P, Acetone, preparation 108-95-2P,

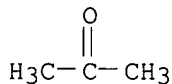
Phenol, preparation

RL: PREP (Preparation)

(production of, from cumene, optimization of, kinetic model for)

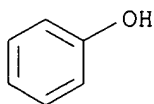
RN 67-64-1 HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 16 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1992:58951 HCAPLUS

DN 116:58951

ED Entered STN: 21 Feb 1992

TI Oxidation of cumene to cumene hydroperoxide

IN Kurowski, Stanislaw; Gluszek, Jan; Ciborowski, Stanislaw; Krupiczka, Zofia; Franek, Lucjan; Zebrowski, Michal; Galbfach, Ryszard; Rosciszewski, Andrzej; Urbanski, Janusz; et al.

PA Instytut Chemii Przemyslowej, Pol.

SO Pol., 5 pp. Abstracted and indexed from the unexamined application

CODEN: POXXA7

DT Patent

LA Polish

IC ICM C07C0409-10

CC 25-11 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 153594	B1	19910531	PL 1988-274243	19880815 <--
PRAI	PL 1988-274243		19880815	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
PL 153594	ICM	C07C0409-10
	IPCI	C07C0409-10 [ICM,5]

OS CASREACT 116:58951

AB **Cumene hydroperoxide** is prepared by oxidation of **cumene** by a mixture of gases containing O at 100-135° under increased pressure in a tubular reactors under autoterminating conditions. The reaction temperature is maintained by regulation of temps. of the substrates

introduced into the reactor. Oxidation selectivities of 90.5-93.2% are achieved.

ST **cumene** oxidn **air**; hydroperoxide **cumene**

IT Oxidation

(of **cumene** with **air** and tubular reactor)IT **98-82-8, Cumene**

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of, by **air** in tubular reactor)IT **80-15-9P, Cumene hydroperoxide**

RL: SPN (Synthetic preparation); PREP (Preparation)

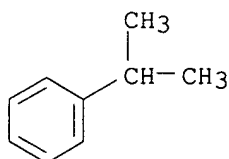
(preparation of, by **air** oxidation of **cumene** in tubular reactor)IT **98-82-8, Cumene**

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of, by **air** in tubular reactor)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

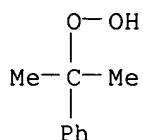
IT **80-15-9P, Cumene hydroperoxide**

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of, by **air** oxidation of **cumene** in tubular reactor)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 17 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1991:45471 HCAPLUS  
 DN 114:45471  
 ED Entered STN: 09 Feb 1991  
 TI Process for the separation of acidic impurities from **cumene hydroperoxide** reaction mixtures  
 IN Raue, Bernd; Bartkowiak, Horst; Hofmann, Rolf; Krawetzke, Ernst; Weise, Hans Dieter; Brechtel, Guenther; Perlich, Gerhard; Naumann, Hans Joachim  
 PA VEB Leuna-Werke "Walter Ulbricht", Ger. Dem. Rep.  
 SO Ger. (East), 8 pp.  
 CODEN: GEXXA8  
 DT Patent  
 LA German  
 IC ICM C07C0409-10  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 25, 48  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DD 280659	A3	19900718	DD 1987-301530	19870406 <--
PRAI	DD 1987-301530		19870406	<--	

CLASS

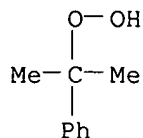
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DD 280659	ICM	C07C0409-10
	IPCI	C07C0409-10 [ICM,5]; C07C0409-00 [ICM,5,C*]

AB **Cumene hydroperoxide** (I) reaction mixts. (having I content 17-28%, prepared by the oxidation of **cumene** with O-containing gases) are mixed with an inert carrier gas and heated in a heating unit under reduced pressure with residence time 1-6 min. This process allows a simple and effective separation of the acidic components. Process flow diagrams are presented.  
 ST **cumene hydroperoxide** acidic impurity removal; oxidn  
**cumene hydroperoxide** manuf; thermal treatment  
**cumene hydroperoxide** purifn  
 IT Heat, chemical and physical effects  
 (in removal of acidic impurities from **cumene hydroperoxide**)  
 IT 7727-37-9, Nitrogen, uses and miscellaneous  
 RL: USES (Uses)  
 (carrier, in heat treatment purification-removal of acidic impurities from **cumene hydroperoxide**)  
 IT 80-15-9P, **Cumene hydroperoxide**  
 RL: PREP (Preparation)  
 (preparation and removal of acidic impurities from, by heat treatment)  
 IT 98-82-8, **Cumene**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with **oxygen**-containing gases and **cumene hydroperoxide** manufacture)  
 IT 80-15-9P, **Cumene hydroperoxide**  
 RL: PREP (Preparation)

(preparation and removal of acidic impurities from, by heat treatment)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



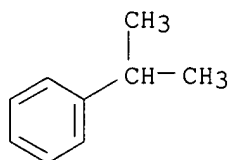
IT 98-82-8, Cumene

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with oxygen-containing gases and cumene hydroperoxide manufacture)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 18 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1989:137494 HCAPLUS

DN 110:137494

ED Entered STN: 15 Apr 1989

TI Process for cumene hydroperoxide manufacture by cumene oxidation with reduced energy consumption by efficient heat of formation exchange

IN Bartkowiak, Horst; Haase, Bernd; Hofmann, Rolf; Naumann, Hans Joachim; Raue, Bernd

PA VEB Leuna-Werke "Walter Ulbricht", Ger. Dem. Rep.

SO Ger. (East), 4 pp.

CODEN: GEXXA8

DT Patent

LA German

IC ICM C07C0179-04

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 25, 48

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DD 258531	A3	19880727	DD 1980-222718	19800718 <--
PRAI	DD 1980-222718		19800718	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DD 258531	ICM	C07C0179-04
	IPCI	C07C0179-04 [ICM,4]

OS CASREACT 110:137494

AB Cumene hydroperoxide (I) is produced, with reduced formation of byproducts, and with improved utilization of I heat of formation (thus improving process economics), by oxidation of cumene

with O-containing gases (preferably air) at 353-413 K in a multistep countercurrent reactor with I concentration by prewarming the charged **cumene** first by countercurrent contact with the exiting gases, then by indirect contact with a recycled heat exchanger from I heat of formation, and finally through the oxidates leaving the countercurrent reactor, from which unreacted **cumene** is evaporated under reduced pressure. **Cumene** is initially warmed by off gases to 326 K, warmed to 353 K by the heat exchanger of the recycle cooling system, and the leaving of oxidates is subsequently cooled to <375 K (preferably 365 K). Using this process, an oxidate product, concentration to 89% I, was prepared

in which the I yield was 95.3% (based on **cumene**) and the consumption of heated steam was 3135 kg/h, vs. 89, 93.7, and 4970, resp., for a process not effectively utilizing I heat of formation.

ST heat of formation **cumene hydroperoxide**; oxidn  
**cumene** manuf **cumene hydroperoxide**; energy  
consumption redn oxidn **cumene**

IT Heat of oxidation  
(of **cumene** , utilization of, in energy-saving **cumene hydroperoxide** manufacture)

IT Heat of formation  
(of **cumene hydroperoxide**, utilization of, in energy-saving **cumene hydroperoxide** manufacture)

IT Oxidation  
(of **cumene**, in **cumene hydroperoxide** manufacture with reduced energy consumption)

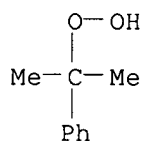
IT 80-15-9P, **Cumene hydroperoxide**  
RL: PREP (Preparation)  
(manufacture of, by **cumene** oxidation, heat of formation utilization in)

IT 98-82-8, **Cumene**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, to **cumene hydroperoxide**, heat of formation utilization in)

IT 80-15-9P, **Cumene hydroperoxide**  
RL: PREP (Preparation)  
(manufacture of, by **cumene** oxidation, heat of formation utilization in)

RN 80-15-9 HCAPLUS

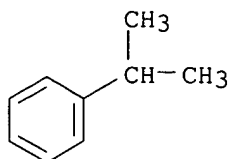
CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



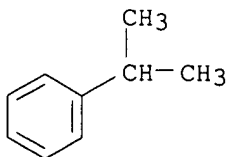
IT 98-82-8, **Cumene**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, to **cumene hydroperoxide**, heat of formation utilization in)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 19 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN **1986:462652** HCAPLUS  
 DN **105:62652**  
 ED Entered STN: 23 Aug 1986  
 TI Optimization of the industrial oxidation of **isopropylbenzene**  
 AU Epifanova, A. G.; Syshchikov, I. G.; Krivenko, S. V.; Bruk, A. Yu.;  
 Arsen'eva, N. S.; Sarkisova, I. A.  
 CS USSR  
 SO Khimicheskaya Promyshlennost (Moscow, Russian Federation) (1986  
 ), (5), 269-70  
 CODEN: KPRMAW; ISSN: 0023-110X  
 DT Journal  
 LA Russian  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 OS CASREACT 105:62652  
 AB Regression equations are given for optimizing the oxidation of  
**isopropylbenzene** (I) [98-82-8] to its hydroperoxide [80-15-9]  
 in a column apparatus with respect to process selectivity and  
 output. The optimal process parameters were I feeding rate 25 m<sup>3</sup>/h,  
 air supply rate 3000 m<sup>3</sup>/h, temperature in the upper part of apparatus  
 125°, and temperature in the lower part of apparatus 115°. These  
 parameters resulted in 92% selectivity and 3200 kg/h' output.  
 ST optimization oxidn **isopropylbenzene**; **isopropylbenzene**  
**hydroperoxide** manuf optimization  
 IT Oxidation  
 (of **isopropylbenzene** to hydroperoxide, optimization of)  
 IT Process optimization  
 (of oxidation, of **isopropylbenzene** to hydroperoxide)  
 IT **98-82-8**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to hydroperoxide, optimization of)  
 IT **80-15-9P**  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation of, from **isopropylbenzene**, oxidation optimization in)  
 IT **98-82-8**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to hydroperoxide, optimization of)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

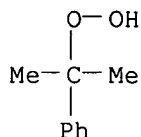


IT **80-15-9P**

RL: **IMF (Industrial manufacture); PREP (Preparation)**  
 (preparation of, from **isopropylbenzene**, oxidation optimization in)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 20 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN **1985:78128** HCAPLUS

DN **102:78128**

ED Entered STN: 09 Mar 1985

TI **Ozone**-initiated liquid-phase oxidation of **cumene**. I.

Formation of **cumene hydroperoxide**

AU Sotelo, J. L.; Torregrosa, J.; Montero de Espinosa, V.; Beltran, F. J.

CS Fac. Cienc., Univ. Extremadura, Badajoz, Spain

SO Anales de Quimica, Serie A: Quimica Fisica e Ingenieria Quimica ( **1983**), 79(3), 449-54

CODEN: AQSTDQ; ISSN: 0211-1330

DT Journal

LA Spanish

CC 22-7 (Physical Organic Chemistry)

AB The **O3** initiated oxidation of **cumene** (I), which does not have an induction period (as contrasted to the **O2** oxidation), gives yields of **cumene hydroperoxide** (II) which are similar to those obtained in the **O2** oxidation The yield of II is optimized. The kinetics and mechanism of the **O3**- and the **O2**-initiated I oxidns. are discussed.

ST kinetics autoxidn **cumene ozone**; mechanism autoxidn **cumene hydroperoxide**

IT Kinetics of oxidation

Oxidation

Oxidation, aut-

(of **cumene** in presence of **ozone**)

IT Kinetics of oxidation

(aut-, of **cumene** in presence of **ozone**)

IT **80-15-9P**

RL: FORM (Formation, nonpreparative); **PREP (Preparation)**

(formation of, in **ozone**-initiated oxidation of **cumene**)

IT **10028-15-6**, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation by, of **cumene**)

IT **98-82-8**

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of, in liquid phase, **ozone**-initiated, kinetics of)

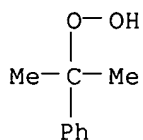
IT **80-15-9P**

RL: FORM (Formation, nonpreparative); **PREP (Preparation)**

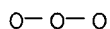
(formation of, in **ozone**-initiated oxidation of **cumene**)

RN 80-15-9 HCAPLUS

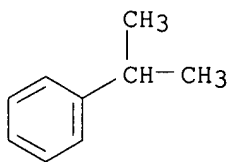
CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 10028-15-6, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation by, of **cumene**)  
 RN 10028-15-6 HCAPLUS  
 CN Ozone (8CI, 9CI) (CA INDEX NAME)



IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, in liquid phase, **ozone**-initiated, kinetics of)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 21 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1983:575301 HCAPLUS  
 DN 99:175301  
 ED Entered STN: 12 May 1984  
 TI Effect of the quantity of supplied **air** on the oxidation of  
**isopropylbenzene**  
 AU Karag'ozova, S. S.; Nikolov, N.  
 CS Burgas NKHK, Burgas, Bulg.  
 SO Neftepererabotka i Neftekhimiya (Moscow, Russian Federation) (1983  
 ), (8), 27-8  
 CODEN: NNNSAF; ISSN: 0028-1190  
 DT Journal  
 LA Russian  
 CC 25-11 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 AB Increase in the amount of **air** supplied to the title oxidation at  
 110-118° and 0.35 MPa from 1800-2175 m3/h increased PhCMe2OOH yield  
 and decreased the yields of PhCMe2OH and PhCOMe by-products, but did not  
 effect PhCHMe2 losses in the waste gases.  
 ST **cumene** oxidn **air** supply effect; hydroperoxide  
**cumene**  
 IT Oxidation  
 (of **cumene**, effect of **air** supply on)  
 IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, effects of **air** supply on)  
 IT 80-15-9P



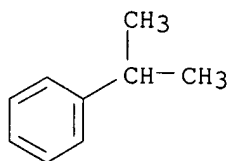
RL: **SPN (Synthetic preparation); PREP (Preparation)**  
(preparation of, by oxidation of **cumene**, effect of **air**  
supply on)

IT 98-82-8

RL: **RCT (Reactant); RACT (Reactant or reagent)**  
(oxidation of, effects of **air** supply on)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

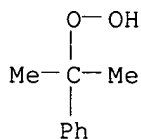


IT 80-15-9P

RL: **SPN (Synthetic preparation); PREP (Preparation)**  
(preparation of, by oxidation of **cumene**, effect of **air**  
supply on)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 22 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1981:603487 HCAPLUS

DN 95:203487

ED Entered STN: 12 May 1984

TI Optimization of an industrial process for oxidation of **cumene** to  
**cumene hydroperoxide**

AU Petkov, A.; Petrov, P.; Dimitrov, D.; Popangelova, M.; Panaitova, E.;  
Nikolov, N.

CS Bulg.

SO Godishnik na Visshiya Khimikotekhnologicheski Institut, Sofiya (  
1979), Volume Date 1978, 25(2), 121-3

CODEN: GVKIAH; ISSN: 0489-6211

DT Journal

LA Bulgarian

CC 25-11 (Noncondensed Aromatic Compounds)

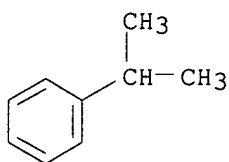
AB The existing oxidation for the title process cannot function effectively,  
since the O from the oxidizing **air** is consumed on the 1st  
plates, and only impurities accumulate on the remaining ones. The process  
was improved by adding a limited amount of O at a strictly controlled point  
on the column, which permits an increase in the reaction mass and  
therefore a >2-fold increase in the PhCMe2OOH concentration with an  
insignificant

increase in decomposition

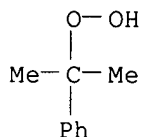
ST **cumene hydroperoxide** prodn optimization; oxidn  
**cumene** optimization

IT Optimization

(of **cumene** oxidation to hydroperoxide)  
 IT Oxidation  
 (of **cumene** to hydroperoxide, optimization of)  
 IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, to hydroperoxide, optimization of)  
 IT **80-15-9P**  
 RL: **PREP (Preparation)**  
 (production of, optimization of)  
 IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, to hydroperoxide, optimization of)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT **80-15-9P**  
 RL: **PREP (Preparation)**  
 (production of, optimization of)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 23 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN **1981:603484** HCAPLUS  
 DN **95:203484**  
 ED Entered STN: 12 May 1984  
 TI Improvement and increase in the efficiency of **phenol** and **acetone** production  
 AU Pestrikov, A. P.; Fedoseev, F. G.; Lyapina, O. P.  
 CS USSR  
 SO Neftepererabotka i Neftekhimiya (Moscow, Russian Federation) (1981), (9), 27-8  
 CODEN: NNNSAF; ISSN: 0028-1190  
 DT Journal  
 LA Russian  
 CC 25-10 (Noncondensed Aromatic Compounds)  
 AB The history of PhOH and Me2CO production from **cumene** at the Ufa Synthetic-Alc. Plant is given.  
 ST **phenol; acetone; cumene** oxidn app  
 IT Oxidation  
 (of **cumene**, production of **phenol** and **acetone** by, at Ufa Synthetic-Alc. Plant)  
 IT **98-82-8**

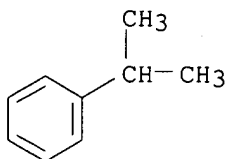
RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to **phenol** and **acetone**, at Ufa  
 Synthetic-Alc. Plant)

IT 80-15-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (preparation and decomposition of, **phenol** and **acetone** by, at  
 Ufa Synthetic-Alc. Plant)

IT 67-64-1P, preparation 108-95-2P, preparation  
 RL: PREP (Preparation)  
 (production of, by oxidation of **cumene**, at Ufa Synthetic-Alc. Plant)

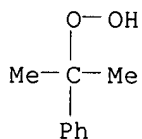
IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to **phenol** and **acetone**, at Ufa  
 Synthetic-Alc. Plant)

RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



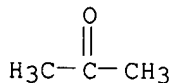
IT 80-15-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (preparation and decomposition of, **phenol** and **acetone** by, at  
 Ufa Synthetic-Alc. Plant)

RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

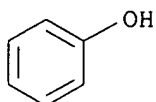


IT 67-64-1P, preparation 108-95-2P, preparation  
 RL: PREP (Preparation)  
 (production of, by oxidation of **cumene**, at Ufa Synthetic-Alc. Plant)

RN 67-64-1 HCAPLUS  
 CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 24 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1981:568781 HCAPLUS

DN 95:168781

ED Entered STN: 12 May 1984

TI Phenol and acetone from cumene

PA Mitsui Petrochemical Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C07C0027-00

CC 25-10 (Noncondensed Aromatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 56063931	A2	19810530	JP 1979-140259	19791029 <--
	JP 60050167	B4	19851107		
PRAI	JP 1979-140259	A	19791029	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 56063931	IC	C07C0027-00
	IPCI	C07C0027-00
	IPCR	C07C0027-00 [I,A]; C07C0027-00 [I,C*]

AB Air oxidation of cumene gave cumene hydroperoxide, which was decomposed by concentrated H2SO4 and the mixture neutralized and distilled

to give low b.p. aldehydes (this fraction was recycled to the decomposition mixture), acetone, and PhOH.

ST cumene hydroperoxide acid decompn; acetone; phenol

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, cumene hydroperoxide from)

IT 80-15-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and acid decomposition of, acetone and phenol from)

IT 67-64-1P, preparation 108-95-2P, preparation

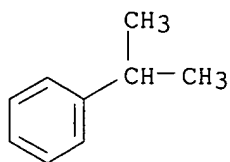
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, from acid decomposition of cumene hydroperoxide)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, cumene hydroperoxide from)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

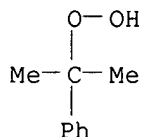


IT 80-15-9P

RL: RCT (Reactant); **SPN (Synthetic preparation); PREP (Preparation)**; RACT (Reactant or reagent)  
 (preparation and acid decomposition of, **acetone** and **phenol** from)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

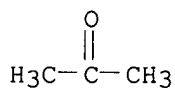


IT 67-64-1P, preparation 108-95-2P, preparation

RL: **SPN (Synthetic preparation); PREP (Preparation)**  
 (preparation of, from acid decomposition of **cumene hydroperoxide**)

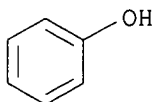
RN 67-64-1 HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 25 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1981:515038 HCAPLUS

DN 95:115038

ED Entered STN: 12 May 1984

TI Phenolic compounds

IN Nishimura, Tadahiko; Osuo, Hiroshi; Yamamoto, Masatoshi; Kanazawa, Akio

PA Mitsui Petrochemical Industries, Ltd., Japan

SO Eur. Pat. Appl., 25 pp.

CODEN: EPXXDW

DT Patent

LA English

IC C07C0039-04; C07C0039-07; C07C0039-08; C07C0037-08

CC 25-10 (Noncondensed Aromatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 28522	A1	19810513	EP 1980-303895	19801031 <--
	EP 28522	B1	19830323		
	R: DE, FR, GB, IT, NL				
	JP 56065834	A2	19810603	JP 1979-142448	19791102 <--
	JP 58014411	B4	19830318		
	US 4351967	A	19820928	US 1980-202482	19801031 <--
	CA 1153017	A1	19830830	CA 1980-363805	19801031 <--
PRAI	JP 1979-142448	A	19791102	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 28522	IC	C07C0039-04; C07C0039-07; C07C0039-08; C07C0037-08
	IPCI	C07C0039-04; C07C0039-07; C07C0039-08; C07C0039-00 [C*]; C07C0037-08; C07C0037-76; C07C0037-80; C07C0037-86 [ICA]; C07C0037-74 [ICA]; C07C0037-00 [ICA,C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0037-68 [I,A]; C07C0037-76 [I,A]; C07C0037-80 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]
JP 56065834	IPCI	C07C0039-02; C07C0039-00 [C*]; C07C0037-74; C07C0037-00 [C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0037-68 [I,A]; C07C0037-76 [I,A]; C07C0037-80 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]
US 4351967	IPCI	B01D0003-40; B01D0003-34 [C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0037-68 [I,A]; C07C0037-76 [I,A]; C07C0037-80 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]
CA 1153017	NCL	568/754.000; 203/064.000; 568/798.000
	IPCI	C07C0037-08; C07C0037-00 [C*]
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0037-68 [I,A]; C07C0037-76 [I,A]; C07C0037-80 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]

OS MARPAT 95:115038

AB The acid-catalyzed cleavage of aralkyl hydroperoxides gave phenolic compds. which were removed by extractive distillation, all in an apparatus which is

described. Thus, PhC(OOH)Me<sub>2</sub> was heated with H<sub>2</sub>SO<sub>4</sub> at 80° to give PhOH and Me<sub>2</sub>CO.

ST **cumene hydroperoxide** cleavage catalyst; **phenol**

IT Thermal decomposition catalysts  
(sulfuric acid, for **cumene hydroperoxide**)

IT 7664-93-9, uses and miscellaneous  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for thermal decomposition of **cumene hydroperoxide**)

IT 98-82-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydroperoxidn. of)

IT 80-15-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and thermal decomposition of, catalysts for)

IT 67-64-1P, preparation 108-95-2P, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)

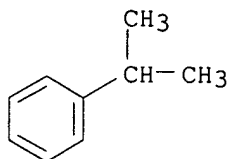
(preparation of, by thermal decomposition of **cumene hydroperoxide**, catalysts for)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydroperoxidn. of)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

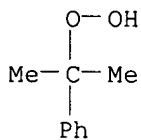


IT 80-15-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and thermal decomposition of, catalysts for)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)

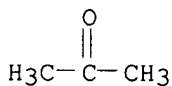


IT 67-64-1P, preparation 108-95-2P, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, by thermal decomposition of **cumene hydroperoxide**, catalysts for)

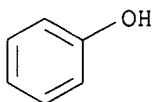
RN 67-64-1 HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 26 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1980:163707 HCAPLUS

DN 92:163707

ED Entered STN: 12 May 1984

TI Alkylbenzene hydroperoxides  
 IN Yasuhara, Mitsuki; Miki, Hisaya  
 PA Mitsui Petrochemical Industries, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF

DT Patent

LA Japanese

IC C07C0179-02

CC 25-11 (Noncondensed Aromatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 54132539	A2	19791015	JP 1978-38822	19780404 <--
	JP 60024787	B4	19850614		
PRAI	JP 1978-38822	A	19780404	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 54132539	IC	C07C0179-02
	IPCI	C07C0179-02

AB Alkylbenzene hydroperoxides containing  $\geq 1$  iso-Pr group were prepared by oxidation of alkylbenzenes during which the unreacted alkylbenzenes were recovered by contact with an aqueous solution of pH  $\geq 12.5$  followed by  $>0.3$  M aqueous  $\text{CO}_3^{2-}$  solution and recycled. Thus, a **cumene** oxidation mixture containing **cumene hydroperoxide** (I) and 70 weight% unreacted **cumene** was distilled in vacuo, the separated I decomposed with  $\text{H}_2\text{SO}_4$  to give PhOH and  $\text{Me}_2\text{CO}$ , the combined unreacted and fresh **cumene** was treated with aqueous NaOH of pH 14, then 1 M aqueous  $\text{Na}_2\text{CO}_3$  of pH 11.6, washed with  $\text{H}_2\text{O}$ , and oxidized to give I 99.2, PhCMe $2$ OH  $<0.1$ , and PhCOME 0.8 mol%, vs. 86.0, 12.7, and 1.3 mol%, resp., with aqueous NaOH alone.

ST alkylbenzene oxidn; **phenol acetone** manuf;

IT **cumene hydroperoxide**; hydroperoxide alkylbenzene

IT Oxidation

(of alkylbenzenes, alkylbenzene hydroperoxides from)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of)

IT 80-15-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(preparation and decomposition of)

IT 67-64-1P, preparation 108-95-2P, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of, by decomposition of **cumene hydroperoxide**)

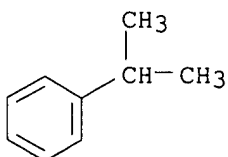
IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



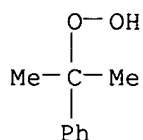
IT 80-15-9P



RL: RCT (Reactant); **SPN (Synthetic preparation); PREP (Preparation)**; RACT (Reactant or reagent)  
(preparation and decomposition of)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



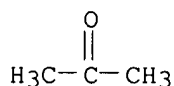
IT **67-64-1P**, preparation **108-95-2P**, preparation

RL: **SPN (Synthetic preparation); PREP (Preparation)**

(preparation of, by decomposition of **cumene hydroperoxide**)

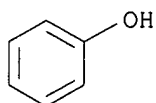
RN 67-64-1 HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 27 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN **1980:146430** HCAPLUS

DN **92:146430**

ED Entered STN: 12 May 1984

TI Alkylbenzene hydroperoxides

IN Yasuhara, Mitsuki; Miki, Hisaya

PA Mitsui Petrochemical Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C07C0179-02

CC 25-11 (Noncondensed Aromatic Compounds)

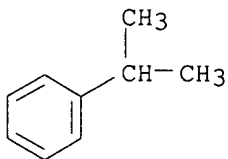
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 54132540	A2	19791015	JP 1978-38823	19780404 <--
PRAI	JP 1978-38823	A	19780404	<--	

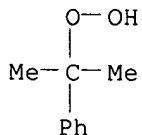
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 54132540	IC	C07C0179-02
	IPCI	C07C0179-02

- AB Alkylbenzene hydroperoxides containing  $\geq 1$  iso-Pr group were prepared by oxidation of alkylbenzenes, during which the unreacted alkylbenzenes were recovered by contact with an aqueous soln of pH  $>12.5$  containing  $\geq 0.1$  mol/L  $\text{CO}_3^{2-}$  and recycled. Thus, a **cumene** oxidation mixture containing **cumene hydroperoxide** (I) and 70 weight% unreacted **cumene** was distilled in vacuo, the separated I decomposed with  $\text{H}_2\text{SO}_4$  to give  $\text{PhOH}$  and  $\text{Me}_2\text{CO}$ , the combined unreacted and fresh **cumene** was treated with 1 M aqueous  $\text{Na}_2\text{CO}_3$  solution containing  $\text{NaOH}$  (pH 13.1) at room temperature,
- cumene** separated, washed with  $\text{H}_2\text{O}$ , and oxidized to give I 99.0,  $\text{PhCMe}_2\text{OH}$  0.3, and  $\text{PhCOMe}$  0.7 mol%, vs. 83.4, 15.4, and 1.2 mol%, resp., with 0.05 M  $\text{Na}_2\text{CO}_3$ .
- ST alkylbenzene oxidn; **phenol acetone** manuf;  
**cumene hydroperoxide**; hydroperoxide alkylbenzene
- IT Oxidation  
 (of alkylbenzenes, alkylbenzene hydroperoxides from)
- IT **98-82-8**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of)
- IT **80-15-9P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and decomposition of)
- IT **67-64-1P**, preparation **108-95-2P**, preparation  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by decomposition of **cumene hydroperoxide**)
- IT **98-82-8**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of)
- RN **98-82-8** HCAPLUS
- CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

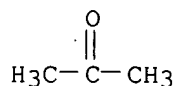


- IT **80-15-9P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and decomposition of)
- RN **80-15-9** HCAPLUS
- CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



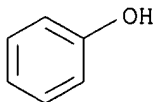
- IT **67-64-1P**, preparation **108-95-2P**, preparation  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by decomposition of **cumene hydroperoxide**)
- RN **67-64-1** HCAPLUS

CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS

CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 28 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1979:456628 HCAPLUS

DN 91:56628

ED Entered STN: 12 May 1984

TI Cumene hydroperoxide

IN Wu, Ching-Yong; Swift, Harold E.; Bozik, John E.

PA Gulf Research and Development Co., USA

SO U.S., 4 pp.

CODEN: USXXAM

DT Patent

LA English

IC C07C0179-04

INCL 568574000

CC 25-11 (Noncondensed Aromatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4153635	A	19790508	US 1977-859291	19771212 <--
PRAI	US 1976-748729	A2	19761209	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4153635	IC	C07C0179-04
	INCL	568574000
	IPCI	C07C0179-04
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	NCL	568/574.000

AB PhCMe2OOH was prepared by the oxidation of PhCHMe2 by **air** or **O2** at 90-130° under **anhydr.** conditions in the presence of BaO as catalyst.

ST **cumene hydroperoxide**; oxidn **cumene** catalyst  
barium oxide

IT Oxidation catalysts  
(barium oxide, for **cumene** to **cumene hydroperoxide**)

IT 1304-28-5, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

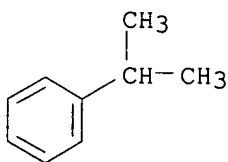
(catalysts, for oxidation of **cumene** to imine hydroperoxide)

IT 98-82-8

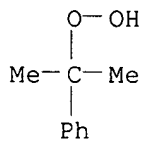
RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidation of, to **cumene hydroperoxide**, catalysts for)

IT 80-15-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by oxidation of **cumene**, catalysts for)  
 IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of, to **cumene hydroperoxide**, catalysts for)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT 80-15-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by oxidation of **cumene**, catalysts for)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 29 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1979:22487 HCAPLUS  
 DN 90:22487  
 ED Entered STN: 12 May 1984  
 TI Oxidation of **cumene** in the presence of anion exchange  
**resins**  
 AU Boncheva, S.; Nikolov, N.  
 CS Bulg.  
 SO Neft i Khimiya (Burgas, Bulgaria) (1977), 11, 15-18  
 CODEN: NKBBDM; ISSN: 0204-5192  
 DT Journal  
 LA Bulgarian  
 CC 25-11 (Noncondensed Aromatic Compounds)  
 AB In the oxidation of **cumene** (I) to **cumene**  
**hydroperoxide** by air at 106-13°, the addition to I  
 of 0.08-0.5% of Wofatit AD-41 (a weakly-alkaline anionic **resin**)  
 reduced the formation of AcPh and Me2CPhOH and increased the pH of the  
 recycled I to 6.0 (this eliminated the need for neutralization before  
 recycling).  
 ST **cumene** oxidn anion exchange **resin**; **cumene**  
**hydroperoxide**  
 IT Oxidation  
 (of **cumene** in presence of anion exchangers)  
 IT Anion exchangers  
 (oxidation of **cumene** to **cumene hydroperoxide**  
 in presence of)  
 IT 39429-11-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of **cumene** to **cumene hydroperoxide**  
in presence of)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, to **cumene hydroperoxide**, in presence of  
anion exchange **resin**)

IT 80-15-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, by oxidation of **cumene** with **air** in  
presence of anion exchange **resin**)

IT 39429-11-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of **cumene** to **cumene hydroperoxide**  
in presence of)

RN 39429-11-3 HCAPLUS

CN Wofatit AD 41 (9CI) (CA INDEX NAME)

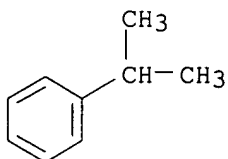
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, to **cumene hydroperoxide**, in presence of  
anion exchange **resin**)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)

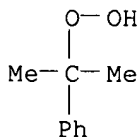


IT 80-15-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, by oxidation of **cumene** with **air** in  
presence of anion exchange **resin**)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 30 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1977:452936 HCAPLUS

DN 87:52936

ED Entered STN: 12 May 1984

TI Recovery of **phenol**, **acetone** and dimethyl phenyl  
carbinol from **cumene** oxidation product

IN Yeh, Chuen Y.; Bohn, Francis L.

PA Allied Chemical Corp., USA

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

IC C07C0037-08

INCL 260621000C

CC 25-10 (Noncondensed Aromatic Compounds)

Section cross-reference(s): 23

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4016213	A	19770405	US 1971-139875	19710503 <--
PRAI	US 1971-139875	A	19710503	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4016213	IC	C07C0037-08
	INCL	260621000C
	IPCI	C07C0037-08
	IPCR	C07C0037-00 [I,C*]; C07C0037-08 [I,A]; C07C0037-86 [I,A]; C07C0039-00 [I,C*]; C07C0039-04 [I,A]; C07C0045-00 [I,C*]; C07C0045-53 [I,A]
	NCL	568/754.000

AB In the preparation of PhOH and Me<sub>2</sub>CO from **cumene**, the formation of high-boiling by-products was reduced and PhOH yield and purity were increased by carrying out **cumene hydroperoxide** (I) decomposition and subsequent fractional distillation under conditions such that dehydration of by-product dimethylphenyl carbinol (II) to PhCMe:CH<sub>2</sub> was substantially avoided, so that most of II was carried unchanged through decomposition and fractional distillation steps and was recovered as a by-product

from the bottom of the column where PhOH was obtained overhead. The decomposition and fractionation conditions were: I was decomposed at 65-105° in the presence of H<sub>2</sub>SO<sub>4</sub> catalyst and absence of added water: decomposition product was withdrawn at I concentration ≤0.5 weight%: a base

was added to the decomposition product to pH .apprx.5-9: fractional distillation was

carried out to sep. Me<sub>2</sub>CO, PhOH, and II.

ST **phenol; acetone; cumene**

**hydroperoxide** decompn; phenyldimethyl carbinol

IT Thermal decomposition

(of **cumene hydroperoxide**, recovery of **phenol, acetone**, and dimethylphenyl carbinol from)

IT 7664-93-9, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for decomposition of **cumene hydroperoxide**)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of)

IT 80-15-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and decomposition of)

IT 67-64-1P, preparation 108-95-2P, preparation 617-94-7P

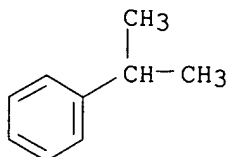
RL: PREP (Preparation)

(recovery of, from **cumene hydroperoxide** decomposition product)

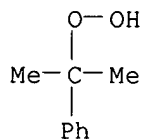
IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of)

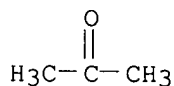
RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



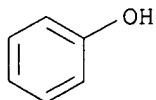
IT 80-15-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and decomposition of)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 67-64-1P, preparation 108-95-2P, preparation  
 RL: PREP (Preparation)  
 (recovery of, from cumene hydroperoxide decomposition product)  
 RN 67-64-1 HCAPLUS  
 CN 2-Propanone (9CI) (CA INDEX NAME)



RN 108-95-2 HCAPLUS  
 CN Phenol (8CI, 9CI) (CA INDEX NAME)



L81 ANSWER 31 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1975:605934 HCAPLUS  
 DN 83:205934  
 ED Entered STN: 12 May 1984  
 TI Continuous preparation of cumene hydroperoxide  
 IN Feder, Raymond L.; Fuhrmann, Robert; Pisanchyn, John; Elishewitz, Saul;  
 Insinger, Thomas H.; Mathew, Chempolil T.  
 PA Allied Chemical Corp., USA  
 SO U.S., 6 pp.

CODEN: USXXAM  
 DT Patent  
 LA English  
 IC C07C  
 INCL 260610000B  
 CC 25-11 (Noncondensed Aromatic Compounds)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3907901	A	19750923	US 1973-348430	19730405 <--
	ES 378777	A1	19730201	ES 1970-378777	19700408 <--
	GB 1257595	A	19711222	GB 1970-1257595	19700603 <--
	NL 7008744	A	19710118	NL 1970-8744	19700615 <--
	JP 54009185	B4	19790421	JP 1970-59972	19700710 <--
PRAI	US 1969-841585	A2	19690714	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3907901	IC	C07C
	INCL	260610000B
	IPCI	C07C0073-08
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
	NCL	568/569.000
ES 378777	IPCI	C07C
GB 1257595	IPCI	C07C0073-08
NL 7008744	IPCI	C07C0073-08
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
JP 54009185	IPCI	C07C0179-04

AB **Cumene hydroperoxide** (I) was prepared in .apprx.92% yield by the continuous **air** oxidation of **cumene** (II) in the absence of initiators, catalysts, additives or alkalizing agents. A mixture containing I of  $\geq 99.8\%$  purity and recycled I, which had been washed with alkali metal hydroxide and H<sub>2</sub>O, was oxidized in a single or multistage system by continuously passing through the mixture a stream of gas containing at least 8 mole% O at such a rate that the exit gas contained 3-10% O. In a multistage system the temperature was maintained stepwise from 120° to 80° and the concentration of I was permitted to increase from 8 to 40%.

ST **cumene** oxidn; hydroperoxide **cumene**

IT **98-82-8**

RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, to hydroperoxide, continuous)

IT **80-15-9P**

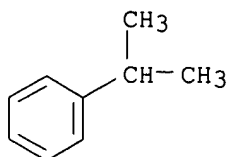
RL: **SPN (Synthetic preparation); PREP (Preparation)**  
 (preparation of, by continuous **cumene** oxidation)

IT **98-82-8**

RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, to hydroperoxide, continuous)

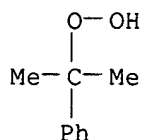
RN **98-82-8 HCAPLUS**

CN **Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)**





IT 80-15-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, by continuous cumene oxidation)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



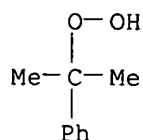
L81 ANSWER 32 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1973:84022 HCAPLUS  
 DN 78:84022  
 ED Entered STN: 12 May 1984  
 TI Concentrated cumene hydroperoxide  
 IN Terpilovskii, N. N.; Ilyukhin, M. A.; Nedbailuk, B. E.; Galegov, V. A.;  
 Rakhimov, V. R.  
 PA Kazan Chemical-Technological Institute  
 SO U.S.S.R.  
 From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1972, 49(32),  
 72.  
 CODEN: URXXAF  
 DT Patent  
 LA Russian  
 IC C07C  
 CC 25-11 (Noncondensed Aromatic Compounds)  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 356272		19721023	SU	19700706 <--

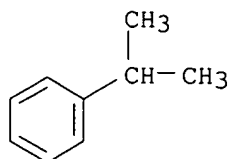
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
SU 356272	IC	C07C
	IPCI	C07C

AB Concentrated PhCMe2OOH (I) was manufactured by air oxidation of PhCHMe2 at  
 elevated temperature, followed by treatment of the intermediate product,  
 containing  
 25-30% I, with air at 60-80°, then recycling of the  
 latter air to the initial oxidation stage.  
 ST cumene hydroperoxide concd; oxidn cumene  
 IT 80-15-9P  
 RL: PREP (Preparation)  
 (manufacture of, by oxidation of cumene)  
 IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of)  
 IT 80-15-9P  
 RL: PREP (Preparation)  
 (manufacture of, by oxidation of cumene)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT 98-82-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidation of)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 33 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1973:29436 HCAPLUS  
 DN 78:29436  
 ED Entered STN: 12 May 1984  
 TI Cumene hydroperoxide  
 IN Tulupov, V. A.; Uvarov, A. V.; Liakumovich, A. G.; Michurov, Yu. I.;  
 Kiyan, N. F.  
 PA Moscow Institute of Fine Chemical Technology  
 SO U.S.S.R.  
 From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1972, 49(28),  
 71.  
 CODEN: URXXAF  
 DT Patent  
 LA Russian  
 IC C07C  
 CC 25-11 (Noncondensed Aromatic Compounds)  
 FAN.CNT 1

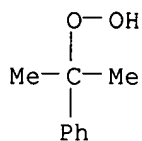
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 351840		19720921	SU	19700407 <--

CLASS

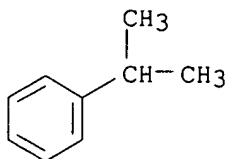
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
SU 351840	IC	C07C
	IPCI	C07C

AB PhCMe2OOH was prepared by air or O oxidation of PhCHMe2 at elevated temperature in the presence of 0.1 weight % C22H66N10Cl10Si(CO)Co2St (sic) complex (St = stearate anion) and 0.05-0.4 weight % α-C10H7NH2.  
 ST cumene hydroperoxide prepn  
 IT Oxidation catalysts  
 (cobalt complexes and naphthylamine, for cumene)  
 IT 134-32-7  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for oxidation of cumene)  
 IT 80-15-9P  
 RL: PREP (Preparation)

(manufacture of, by oxidation of **cumene**, catalysts for)  
 IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, hydroperoxide from)  
 IT **80-15-9P**  
 RL: **PREP (Preparation)**  
 (manufacture of, by oxidation of **cumene**, catalysts for)  
 RN 80-15-9 HCAPLUS  
 CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, hydroperoxide from)  
 RN 98-82-8 HCAPLUS  
 CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 34 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN **1972:140202** HCAPLUS

DN **76:140202**

ED Entered STN: 12 May 1984

TI Hydrocarbon oxidation to hydroperoxides

IN Mead, Theodore C.; Chafetz, Harry

SO U.S., 2 pp.

CODEN: USXXAM

DT Patent

LA English

IC C07C

INCL 260610000B

CC 25 (Noncondensed Aromatic Compounds)

Section cross-reference(s): 24

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3647886	A	19720307	US 1968-703913	19680208 <--
PRAI	US 1968-703913	A	19680208	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3647886	IC	C07C
	INCL	260610000B
	IPCI	C07C0073-08
	NCL	568/570.000; 568/571.000; 568/574.000

AB **Cumene hydroperoxide**, PhCMe<sub>2</sub>OOH, was prepared by heating **cumene** with O under pressure with KF catalyst. Similarly prepared was methylcyclopentane hydroperoxide.

ST hydroperoxide **cumene**; methylcyclopentane hydroperoxide; cyclopentane methyl hydroperoxide; oxidn **cumene oxygen**

IT Hydrocarbons, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, hydroperoxides from)

IT Oxidation catalysts  
(potassium fluoride, for hydroperoxidn. of hydrocarbons)

IT 7789-23-3  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for hydroperoxidn. of hydrocarbons by **oxygen**)

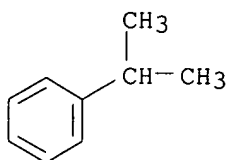
IT 96-37-7 **98-82-8**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydroperoxidn. of)

IT **80-15-9P** 27115-55-5P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

IT **98-82-8**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(hydroperoxidn. of)

RN 98-82-8 HCAPLUS

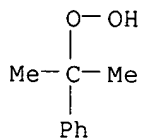
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT **80-15-9P**  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 80-15-9 HCAPLUS

CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



L81 ANSWER 35 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN

AN **1972:85551** HCAPLUS

DN **76:85551**

ED Entered STN: 12 May 1984

TI Continuous manufacture of **cumene hydroperoxide**

IN Feder, Raymond L.; Fuhrmann, Robert; Pisanchyn, John; Elishewitz, Saul; Insinger, Thomas H.; Mathew, Chempolil T.

PA Allied Chemical Corp.

SO Ger. Offen., 20 pp.  
CODEN: GWXXBX

DT Patent

LA German  
 IC C07C  
 CC 25 (Noncondensed Aromatic Compounds)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2035496	A	19720120	DE 1970-2035496	19700717 <--
	DE 2035496	B2	19800228		
	DE 2035496	C3	19801016		
PRAI	DE 1970-2035496		19700717	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 2035496	IC	C07C
	IPCI	C07C [ICM]
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]

AB **Cumene** (I,  $\geq 98.8\%$  pure) was oxidized continuously in **air** in 4 or 6 successive oxidation zones of increasing **cumene hydroperoxide** (II) concentration at  $88-110^\circ$ . Unreacted I was purified and recycled. No catalysts, initiators, or additives were used. Thus, 3630 kg fresh I/hr and 11,340 kg recycled I/hr were passed with **air** (0.68 atm gage) through the 1st reactor at  $110^\circ/5$  hr (residence time) to maintain 10% II concentration. The 2nd reactor, operating at  $90^\circ/5$  hr, contained 18% II; the 3rd ( $90^\circ$ ) and 4th ( $88^\circ$ ) reactor contained 26 and 31% II, resp. The product was concentrated by evaporation to 80% II. I was separated, treated with 1% NaOH and water, and recycled. The total II yield was 95 mole %.

ST **cumene hydroperoxide** continuous manuf; oxidn  
 continuous **cumene**

IT Oxidation  
 (of **cumene**, continuous)

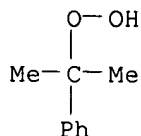
IT **80-15-9P**  
 RL: **PREP (Preparation)**  
 (manufacture of, continuous)

IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, continuous)

IT **80-15-9P**  
 RL: **PREP (Preparation)**  
 (manufacture of, continuous)

RN 80-15-9 HCAPLUS

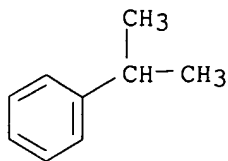
CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT **98-82-8**  
 RL: **RCT (Reactant); RACT (Reactant or reagent)**  
 (oxidation of, continuous)

RN 98-82-8 HCAPLUS

CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



L81 ANSWER 36 OF 36 HCAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1972:3548 HCAPLUS  
 DN 76:3548  
 ED Entered STN: 12 May 1984  
 TI Continuous manufacture of **cumene hydroperoxide** and phenol  
 IN Feder, Raymond L.; Fuhrmann, Robert; Pisanchyn, John; Elishewitz, Saul; Insinger, Thomas H.; Mathew, Chempolil T.  
 PA Allied Chemical Corp.  
 SO Fr., 15 pp.  
 CODEN: FRXXAK  
 DT Patent  
 LA French  
 IC C07C  
 CC 25 (Noncondensed Aromatic Compounds)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2050175	A5	19710326	FR 1970-21172	19700609 <--
	ES 378777	A1	19730201	ES 1970-378777	19700408 <--
	GB 1257595	A	19711222	GB 1970-1257595	19700603 <--
	NL 7008744	A	19710118	NL 1970-8744	19700615 <--
	JP 54009185	B4	19790421	JP 1970-59972	19700710 <--
PRAI	US 1969-841585	A	19690714	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
FR 2050175	IC	C07C
	IPCI	C07C0073-00; C07C0037-00
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
ES 378777	IPCI	C07C
GB 1257595	IPCI	C07C0073-08
NL 7008744	IPCI	C07C0073-08
	IPCR	C07C0409-00 [I,C*]; C07C0409-10 [I,A]
JP 54009185	IPCI	C07C0179-04

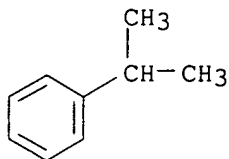
AB **Cumene hydroperoxide** (I) and phenol were continuously produced from **cumene** in pure form without catalyst or alkylating agent by successive **cumene** treatment with O at 80-120°. For example, **cumene** was introduced into an oxidation chamber at 110° with a recycled **cumene** stream (Na washed), and **air** (3-6 O) was pumped into the chamber. The reaction continued for 5 hr to give a 2 by weight I conversion. This effluent was recycled in a similar manner in a 2nd chamber at 90° to show 18 I, a 3rd chamber at 90° to show 26 I, and a 4th chamber at 90° to give 31 I. Yields were higher in reactors with higher reaction temps.

ST **cumene hydroperoxide** phenol; oxidn **air**  
**cumene**

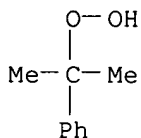
IT 108-95-2P, preparation  
 RL: PREP (Preparation)  
 (manufacture of, from **cumene**)

IT 98-82-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, cumene hydroperoxide and phenol by)  
IT 80-15-9P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
IT 98-82-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidation of, cumene hydroperoxide and phenol by)  
RN 98-82-8 HCAPLUS  
CN Benzene, (1-methylethyl)- (9CI) (CA INDEX NAME)



IT 80-15-9P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 80-15-9 HCAPLUS  
CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



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